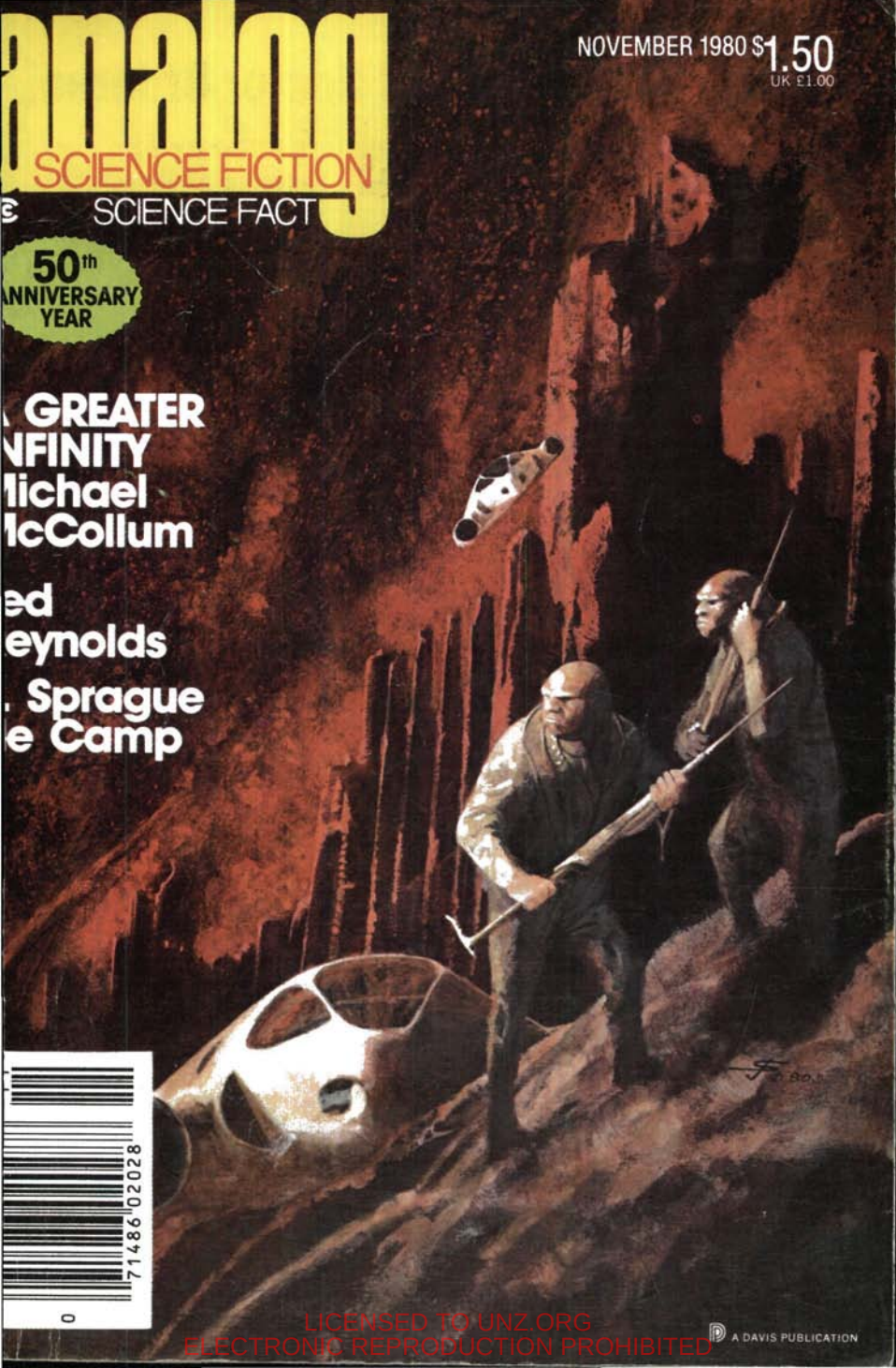

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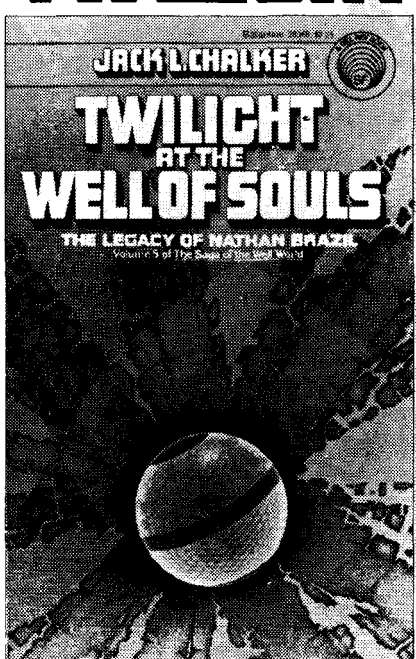

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Spaceflight Folklore

JAMES OBERG

Frequently I'm asked about strange stories of outer space, such as the one about the "phantom satellite" which is supposed to be secretly circling Earth (some say it is a crippled alien spaceship), or the one about the UFO fleet which is supposed to have escorted Apollo-11 to the moon in 1969 (the astronauts on that flight and dozens of others are alleged to have encountered and to have filmed UFOs), or the one about the reportedly successful NASA experiment in space telepathy between Earth and men far out in space. Most people ask me if I've heard these stories (yes!) or know more details (yes!); few of them ever get around to asking if the stories are really true (no!).

Stark reality, in this case, is not as colorful as it is portrayed to be by this new folklore of the space age. There are no "ghost satellites," alien or otherwise, phantom-Dutchman style orbiting Earth. Apollo flights did not encounter flying saucers and NASA is not engaged in some sort of massive cover-up (if anything, they would be flaunting such evidence in an attempt to boost their budget). NASA has no interest in space telepathy and one astronaut's private unauthorized ESP test was a complete foul-up and a dismal failure. The widely-circulated stories are based on misinterpretation, exaggeration, distortion, and not a little fabrication.

And *that*'s the colorful aspect of these stories, the quality that makes them so very fascinating and delightful to me. Where did they really come from? How have they been spread? Who promulgated them, for what purpose? Why have so many people been enthralled by them? The answers to these questions might tell us a lot about the public's attitude towards space information, and about the role of myth in today's too-technological world. Besides, the history of these tales is often extremely funny!!

Guest Editorial

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Take the phantom satellite, for example. Now, up front, a simple check with the Air Force elicits the statement that any objects in such orbits would have been picked up on radar years ago, but haven't been. Optical tracking networks in the U.S. and in Great Britain have no data to support the existence of such phantoms. So it is highly likely that they do not exist.

But whence the latest reincarnation of the story, as headlined in a tabloid weekly newspaper late last year? Well, it goes back ten years, to 1969, when a space scientist named John Bagby published a paper in *Icarus* suggesting the existence of a family of natural objects which formed in a disintegration of a parent body in Earth orbit in 1956. Bagby believes he has the data to establish the reality of the objects, but nobody else does—*except* . . . well, except some *Russians*. A UFO enthusiast in Moscow named Sergey Bozhich read Bagby's paper and came to the conclusion that the objects (which he had never seen) were actually fragments of an exploded UFO (Bozhich has a habit of making such grand leaps of intuition—most recently, he claims to have discovered a UFO home base on Titan). He told an American newspaperman about the objects, carefully neglecting to mention that he had read the reports in an American magazine—Bozhich gave the definite misimpression that *he* had made the discovery and that his comments were based on his own observations. When the newsman returned to the States he followed up on the story and was led to the Bagby article in *Icarus*—and concluded it was independent corroboration of the authenticity of the objects. Bozhich and Bagby even gave *exactly the same date* for the disintegration of the "mothership"!

The last word belongs to NASA spokesman Charles Redmond in Houston. When newsmen hot on the trail of the ten-year-old article called him up demanding to know when NASA would fly an inspection and retrieval mission to the alien derelict, Redmond could hardly believe his ears. Playing along, he advised them that such a mission was being delayed until problems of biological quarantine could be worked out! When he later realized that the newsmen had been serious, he was incredulous.

Redmond had no reason to be surprised by such nonsense. Only weeks before, he had been juggling phone calls from newsmen and the general public, asking about an earlier story in the same tabloid newspaper which claimed that

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"Alien UFOs Watched Our First Astronauts on Moon." That claim had been backed up by quotations from 'space experts' in Russia, France, and the United States. NASA issued a flat denial, of course—but that didn't explain the stories either.

According to the UFO story (which in fact was only recirculating an improved version of a rumor that had been around the world for years), astronauts Armstrong and Aldrin had observed and photographed two alien spaceships landing on the moon's surface shortly after their arrival. NASA allegedly then responded with a massive coverup that was not broken until courageous reporters from the tabloid made contact with hitherto silent sources.

Well, actually the story goes a bit differently. Back in 1969, another tabloid newspaper in Canada published a 'voice transcript' describing UFOs haunting the moon flight—but the transcript is so full of inconsistencies, gobbledegook jargon, and internal contradictions that it was immediately recognized as a hoax. Five years later, a Japanese UFO buff heard of it and purchased photographs from the Apollo-11 flight to search for the "UFO photos." Finding none, he then took some innocuous shots and *retouched* them to convert window reflections into flying saucers. These forged photos were subsequently published in the U.S. and in France, where a writer incorporated them into a book about ancient astronauts; the book then found its way into Russia where it was read by UFO buffs in Moscow, who then passed the story on to their American newspaperman contacts as *Russian* discoveries. The Russian, French, American, and Japanese stories all were similar—they were versions of the same hoax!

Nobody checked up very well on the telepathy story, either. That was the brainchild of astronaut Edgar Mitchell on Apollo-14 in 1971. He brought along a set of ESP cards in his personal luggage and arranged with self-styled psychics to "tune in" for a sequence of card images at a certain time in the flight, during a rest period on the outbound leg of the lunar voyage. Unfortunately, due to a launch delay the "timeline" of the flight was reshuffled and the interval when Mitchell was able to concentrate on sending the messages was many hours different from the hour previously agreed on. However, this did not stop the Earth-bound psychics from announcing that they had been picking up the signals loud and clear! There was one problem: their mes-

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sages as recorded were not only *not* the ones Mitchell had sent, they were not at all similar to each other's: in fact, they missed far more symbols than they would have if they had merely been guessing at random. But in the world of ESP, such a result can be called a success if you are allowed to re-write the rules *a posteriori* (it's like shooting an arrow into the side of a barn and then painting the bull's-eye around it)—and this is what happened: some force in space was deliberately inverting the message and compelling the psychics to pick wrong answers. Thus, *some* (undisclosed and undescribable beforehand) extrasensory power had been demonstrated.

At least, that's what everyone claimed afterwards.

Well, so what? Space exploration remains exciting and mysterious, and I guess what annoys me is that we have no need for such counterfeit mysteries as these. Yet a significant part of the news media has made the rational decision that *this* is the kind of story the public *wants*—and the devil take accuracy and journalistic responsibility. Well, as long as nobody complains (and how will they, if they are not told the full story?), I guess they'll be able to get away with it! ■

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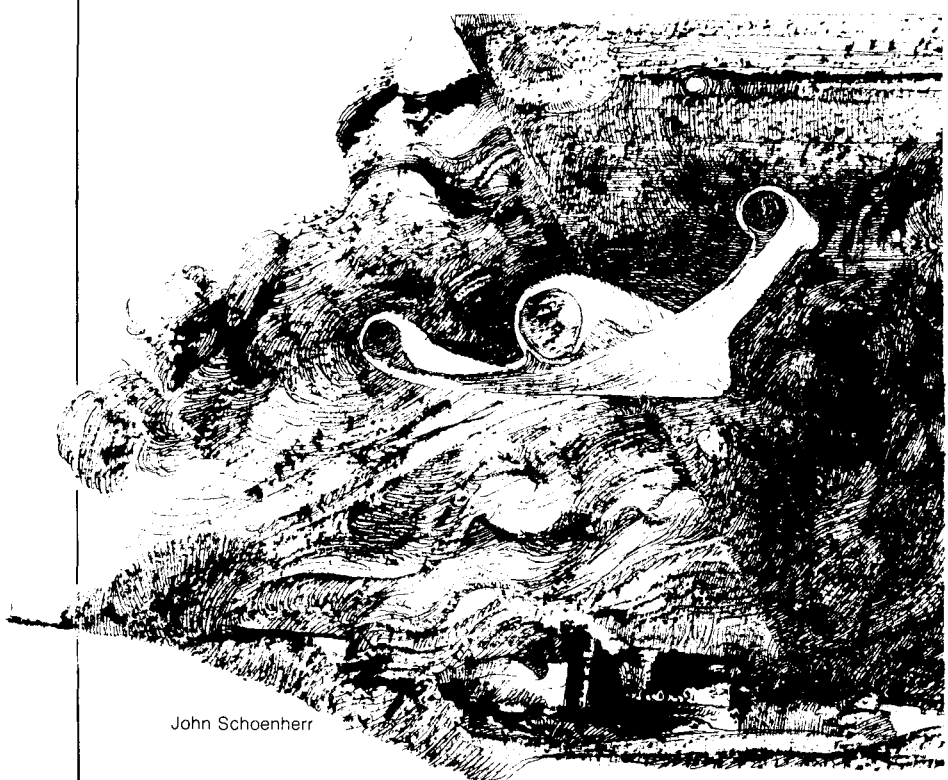

John Schoenherr

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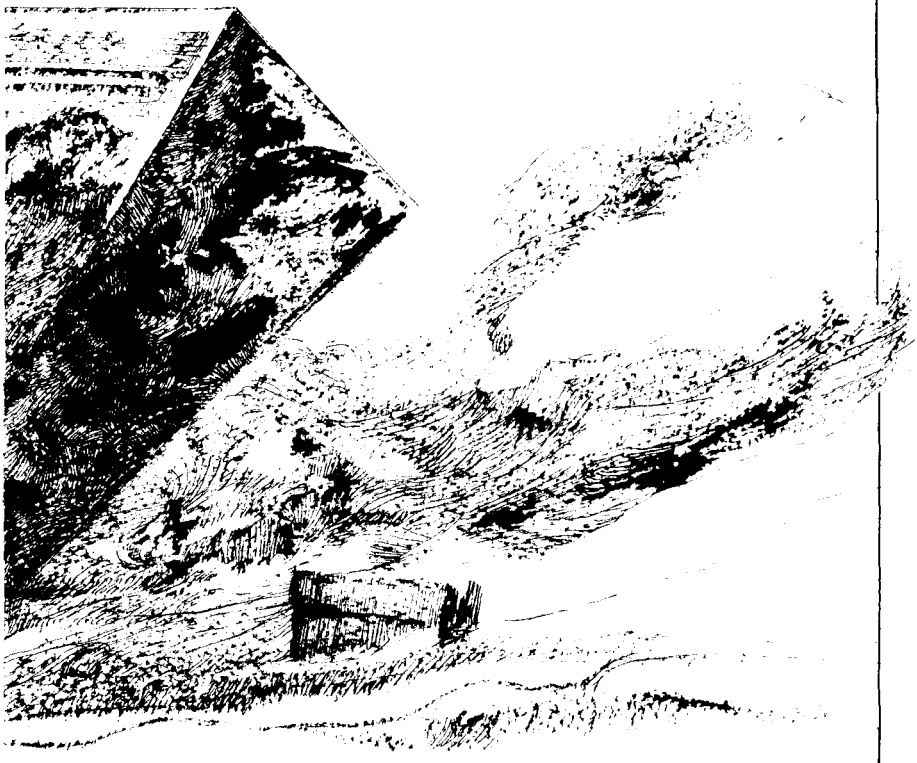
Fruits must be left to ripen
sufficiently before they are picked--
and the fruits of civilization are no exception.

Michael McCollum



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1

The rain, which had pelted us sporadically since midnight, had finally drizzled to a halt and ghostly tendrils of fog were beginning to edge their way into the valley below. A layer of low clouds reflected back the perimeter lights of the cluster of domes on the valley floor, casting a surrealistic pattern of eye-watering brightness and inky shadow over the hills where we lay in wait.

I raised my night vision glasses and quickly scanned the forest before me. Somewhere down there, just at the edge of that circle of light, were a thousand armed and armored men. To each side I could hear the muffled preparations of the cannoneers, and from behind me, the low hiss of steam being vented as the catapult crew waited for dawn.

I checked my wrist chronometer, its green and gold digits flashing unnaturally bright in the stygian shadows where I lay. Twenty-five *centibora*—call it five minutes—to go. I grabbed hold of the wooden stock of my musket and licked dry lips for the hundredth time since we had taken up our vigil on the cold, dark mountainside.

If only this damned waiting were over!

There was a brief rustling of shrubbery to my right, followed quickly by the clatter of armor next to me. I glanced in that direction to discover Lord Ryfik on his belly beside me, peering intently into the valley below. There was a scowl on his face.

"Everyone in position?" I asked, my voice a hoarse whisper. Among my other problems, I was afraid lying on the damp ground had given me a head start to a bad case of pneumonia.

"Aye, Duncan MacElroy. Everyone is ready. And thou?"

"As ready as I'll ever be, I guess."

"Many will die this morn." Ryfik's voice was devoid of emotion as he coolly waited for the battle to begin.

I didn't answer. There wasn't much I could say. He was right. The Dalgiri in the research station were well armed and dug in. I just hoped we had enough manpower to swamp their defenses in our first rush. If not, Dal and I were going to spend the rest of our lives as fugitives on this cold, wet world among people not our own. Haret would pay a dearer price yet. If the attack failed, she would end up dead.

I glanced once more at my chronometer. Two minutes to go.

2

Alternate universes?

Nobody believes in them where I come from.

I didn't believe in them myself until the night Jane Dugway volunteered to accompany me to our local convenience market to replenish the stock of consumables at a meeting of the U.F.O. Spotters Club. It was on the homeward journey that she spotted the Dalgiri assassin hiding in an oleander hedge across the street from my boarding house. The Dalgir was a marauder from out of paratime, an anachronism as out of place as . . . well, as Jane herself.

Jane was an agent of the Taladoran Confederation, a spy whose job it was to study primitive timelines and assess their potential as friend or foe. On the night in question, she had been secretly studying my home timeline for two years. The Taladorans were the hered-

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itary enemies of the Dalgiri Empire, and I quickly found myself swept up in the aeons-long war between the two cross-time superpowers.

When it was over and the Dalgiri menace had been beaten back for the moment, I found myself in a delicate position. I was an outtimer who knew of the existence of paratime.

I was given a hard choice: Either accept a voluntary mindwipe and be robbed of my newly acquired knowledge, or join the Taladorans and use that knowledge in their service.

I chose service and the Taladoran Time Watch.

Things happened very quickly after that. Within hours I found myself aboard a Taladoran shuttle on the way to their capitol timeline. My education began immediately thereafter.

My initial orientation was guided by glittering education machines that pumped knowledge into my mind by a process that looked like hypnosis, but wasn't. And just because I was in a state of trancelike concentration during the lessons, didn't mean the learning came easy. First came Temporal Basic—the *lingua franca* of the Time Watch. When I had that liquidly musical language mastered, at least to the point of such basics as "I'm hungry," or "Show me the way to the bathroom," they started me on the hard stuff.

At the end of the eighth week, I felt as if my head would split open like a ripe grape if forced to memorize even one single fact more. My teachers, noting my falling productivity on the learning machines, held a conference and decided to take pity on me. They authorized ten days of serious R & R.

Jane Dugway, whose real name turned out to be Jana Dougwaix, was called in to act as my guide. We spent the time exploring Jafta, the capital city of the Confederation, and its analogs on neighboring timelines. We never traveled very far in miles—usually just to the shuttle port and back. But what we lacked in distance, we more than made up in variety.

At the end of our brief holiday, Jana and I spent a tender night and a morning of tearful goodbyes. When it was over, I packed my kit and made my way to the Time Watch office at Jafta Shuttle Port. From there it was only a few hours to my destination, the Watch's Training Academy on an uninhabited timeline known simply as Salfa Prime.

Imagine a school that combines all of the military tradition of West Point, St. Cyr, and Sandhurst with the scholarship of Harvard, Oxford, and Cal Tech. If you have a sufficiently vivid imagination, you will have some idea of what the Time Watch Academy is like.

Compared to the Academy, those eight weeks of orientation were just a long vacation.

The amount of knowledge they had to pump into me was staggering. Not just the esoteric subjects necessary to operate successfully across the hundreds of timelines currently open to the Confederation, but also the kindergarten things every Taladoran learned before he could walk. I was a barbarian, a sheepherder in a society that long ago forgot when and where the steam engine had been invented. I was the South Sea Island savage who suddenly found himself in the great courts of Europe, not

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exactly sure how he got there or how he was going to get home again.

Except I knew that going home was out of the question in my case. I knew about paratime. But Talador's insistence that I exile myself from my native land wasn't the only reason I couldn't go home. It wasn't even the main reason.

That lurking Dalgiri assassin had sealed my fate the moment he hid himself in the oleanders. After it was all over and the mauraders were dead, Jana told me what they had been after.

They had been after me.

A Dalgiri team had crossed the chaos of paratime, camping out for months or even years on lines where linear time ran backwards. They were raiders from the future, agents whose only purpose was to kill or capture one Duncan MacElroy, unwitting outtimer.

For many nights thereafter, I lay awake and reflected on my predicament. What had I done—or rather, what would I do in the future—to merit such personalized service? The attempt had cost the Dalgiri four trans-temporal agents and a heavily armed shuttle. The Taladorans wondered about it too, taking the mere fact of the attempt as proof that I would someday be of great service to them.

I wasn't so sure, but being in no position to argue, I kept my doubts to myself.

In the meantime I worked my butt off.

Mornings at the Academy were devoted to working up a sweat. Up at Twenty (the Taladorans break the day down into one hundred *boras*), we were out on the exercise fields before sunrise. Next came combat training. Come Fifty and we broke for a quick meal, followed by an afternoon of skull sweat. Evenings were usually spent in the central library or in a laboratory somewhere catching up on the day's work.

It wasn't all work, though. Every other Tenday or so, I managed to catch up enough to take a few hours off.

3

"Come on in, the water's fine."

The sun was warm on my body as I lay on the outcropping of ochre granite that overlooked the forest pool. Haret was a flesh-colored streak in a pool of amber green as she kept herself afloat by treading water and taunted me to return to the icy stream.

I raised my head from my arms, admiring the way her figure shimmered beneath the surface of the pond. "No way," I said. "Too cold. You come out."

"Coward!"

I grinned. "Sticks and stones will break my bones . . ." My taunt was interrupted by a cloud of icy spray propelled with unerring accuracy by Haret's strong right arm. The freezing droplets splashed across my toasty warm back, sending chills clear down to my toes. I launched myself in a flat racing dive. Within seconds I had grappled Haret's flailing arms, pinned them to her body, and pulled her beneath the water.

We surfaced in a spluttering fit of laughter and swam leisurely for the shore. I helped her climb up the slippery mud bank and we stretched out side by side on the outcropping I had so recently vacated.

Haret Ryland was a fellow student at the Academy, a native of the Gestetni

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Republic, one of the Confederation's three oldest timelines. We had met my second day on Salfa Prime and had become close friends during the past year. Recently, we had also become lovers.

I traced the curve of her naked spine with one finger, caressing each vertebra in turn until I had worked my way down to the swell of her hips.

"Stop that," she giggled as she turned over to allow the sun a chance to dry her front. "It tickles."

"I thought you liked being tickled," I said, reaching out once more.

She intercepted my questing hand with a playful slap. "Don't you primitive types ever get enough?"

I put on my most theatrical leer. "Never!"

She hoisted herself to one elbow, her violet tinged eyes staring into mine.

"What's the matter?" I asked. "Is my nose on crooked?"

"Isn't everyone's?"

She fell silent, letting her eyes roam freely. Her full mouth was pursed in concentration, and her normally wild mane of silky blonde hair framed her face in a wet tangle.

"Why the sudden quiet?" I asked, reaching once more to take her in my arms.

"I'm contemplating an enigma."

"Huh?"

"You. What brings you to the Time Watch, Duncan MacElroy?"

I sighed and sat up, folding my legs under me. I told her of my clash with the Dalgiri goon squad. When I finished, she stared thoughtfully at me.

"What did you do on your timeline?"

"I was a student. I wanted to be a rocket engineer and shoot things into space."

She smiled. "It sounds exciting. Are you sorry you had to give it up?"

I laughed. "Then I would never have met you, would I?" I leaned toward her as I spoke and brushed her soft lips with mine. Haret took my cue, stretching out once more on the hard rock as I pressed close, intent on pursuing the emotion of the moment.

The sky above us lit up with a light brighter than a thousand suns.

Haret's eyes snapped open in a wide-eyed fright and I began counting softly to myself. I was up to fifty when the rumble of deep throated thunder rolled over us.

"Dalgiri!" Haret yelled as we scrambled to our feet and ran for the clearing where we had left our aircar and our clothes.

I didn't have to ask what she meant. What we had seen was a nuclear weapon burst somewhere to the south of us.

"They must be after the portal," I said, panting as we reached the aircar and began throwing on our uniforms.

"Impossible," Haret said. "The Academy can't be reached from any Dalgiri timeline."

I felt a sinking feeling begin to develop in the pit of my stomach as I realized that she was right. Salfa Prime was a dead-end timeline, a cul-de-sac in the structure of paratime. There was but a single portal, and that led back through a companion universe—Salfa Null—to one of the Confederation's outlying timelines. The only way in or out was through the Confederation.

I glanced away from the south as another brilliant flash lit the sky. This time

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the thunder rolled over us a mere thirty seconds later. I peered toward the north and the Academy, and wondered why there were no mushroom clouds sprouting in that direction. That had to be what the raiders were after.

We wasted not an instant longer as we leaped into the aircar and Haret lifted it from the forest glen.

"Where to?" she asked.

"Home to the Academy," I said. "Let's just hope it survives long enough for us to get there."

"Let's hope it survives a lot longer than that," Haret replied, sending the aircar screaming north at full power.

4

"It all started with the Big Bang, that cosmic catastrophe that shattered all of space, rending the great primal egg into a near infinity of stars and galaxies. Matter and energy were violently ejected across billions of light-years, and even time itself was reduced to its component parts.

"In that streaming cauldron of chemical, nuclear, and temporal reactions, paratime was born.

"An observer standing outside, equipped to see the universe's five dimensional shape, would probably look down on a glowing starburst, each timeline radiating outward from a single brilliant center. But as the shape of a spiral galaxy is much simpler to comprehend when viewed from the outside, so too the shape of paratime. From within, the structure is chaotic, random, unformed.

"Most civilizations develop the concept of 'parallel universes' shortly after inventing the scientific method. They usually visualize the timelines as a series of filmstrips laid out side-by-side, each stretching neatly from the very beginnings of time into the infinte, endless future. As a philosophical model it is elegant in the extreme.

"Elegant, but wrong.

"Alternate universes just aren't 'parallel.' They touch, and meld, and separate again with maddening irregularity. And being effectively infinite in number, it is inevitable that there exists in every universe a point that is congruent to a corresponding point in one of the other universes. And wherever this congruence exists, for however long a span of linear time, there is a 'gate' between worlds, a portal for those with the knowledge to use it."

The teaching machine's dry whisper inside my skull was as real as the day it had delivered that lecture. The aircar bucked its way through wicked thermals as we raced for the Academy, ever mindful of the twin pillars of destruction clearly visible in the rear viewscreen. The Dalgiri shuttle was a tiny black speck moving away from us toward the invisible volume of space which was the temporal portal between this timeline and the next. Whether it did so in retreat or attack was impossible to say.

I stepped up the magnification until the shuttle was a black circle against the brilliant blue of the sky. Suddenly a dozen more specks materialized in the open sky around it. My heart sank to my socks as I realized we were as good as dead. Thirteen Dalgiri shuttles carried enough power to make Salfa Prime uninhabitable for the rest of eternity.

I had time to gulp once before there was a brilliant flash behind us, more

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brilliant than the others by an order of magnitude, and the viewscreen burned out. My head and shoulders were suddenly aflame where they projected up above the curve of the aircar body. Haret screamed as the lift-and-drive generators ceased their quiet hum and the car fell free toward the clear blue of a mountain lake below us.

I opened my mouth to yell as the aircar's nose burrowed into the blue wet and icy cold engulfed me once more.

5

The car bobbed to the surface almost as quickly as it had taken the plunge, its interior awash in molten ice courtesy of the open window on Haret's side. I moved quickly to unsnap my safety harness. Haret did likewise. Then, as the engine compartment and storage spaces began to fill with water, I grabbed the emergency kit from under the seat while Haret forced the door open.

We kicked our way out into the bitter cold of the lake just as the car turned nose down and headed for the bottom.

We were chilled to the bone by the time we finished the hundred yard swim to shore. Somehow the water seemed colder than at our swimming pond, even though the streams that fed both originated in the same snow-topped mountain range to the east.

Once ashore we took turns bandaging each other's injuries and smearing an evil smelling yellow salve on our burns. The injuries were minor. I had a slightly sprained shoulder and a couple of tender ribs where the harness had cut into me. Haret's forehead was gashed where she had come in sharp contact with the aircar's instrument panel. We quickly discovered that we had been lucky in the burn department too. We were far enough away when the world exploded that our only problem was a little singeing around the edges. My singes were worse than Haret's because of my darker hair.

"What happened?" I asked as Haret sorted through the emergency kit. It was strictly a first-aid kit, without a sign of anything that could be considered a communicator.

"Disruptor beam burned out the lift-and-drive. Luckily for us, the failsafe worked long enough to cushion the blow."

"What now?"

She tilted her head to one side in the gesture that replaces the shrug among Taladorans. "Either we stay here and wait for rescue, or we walk."

"Rescue while the Dalgiri are establishing their beachhead?"

"Right, I guess we walk," she said.

It took two days to hike back to the Academy. All that first day, we hid whenever air traffic went over, fearful of being spotted on the ground by the Dalgiri. One of the required courses at the Academy was intended to convince us that the Dalgiri were not nice people.

Of course, strictly speaking, the Dalgiri were not people at all. Or rather, they were, but not the same kind as the Taladorans—or the sons of Europe, Asia, and Africa for that matter. Jana had called them 'near men' when she first spotted the Dalgiri assassin. They were of the race *Homo Neanderthalus,* the stoop-shouldered, jutting-eye-ridged men who had lost out in my timeline and most others to the not so stoop-shouldered, craggy-featured Cro-Magnons. Not that the Dalgiri were the in-

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articulate, slow-witted cavemen so lovingly portrayed on the silver screen. The Dalgiri had been civilized before the first Egyptian pharaoh got the idea that it would be a nice touch to pile up a few stones to mark his eternal resting place. The Dalgiri were not savages by any definition of the term.

But they were not nice people. Some of the students at the Academy had been known to faint during lectures concerning Dalgiri customs as they applied to their captive timelines.

The next morning we gave up trying to hide out from the shuttles that flew overhead. For one thing, there were too many of them. Lying low was cutting too far into our travel time. Besides, the shuttles that flitted silently overhead all appeared to be Taladoran.

The sun had just disappeared over the western horizon as we limped tiredly out of the hills and down onto the plain where the Academy was built.

As soon as we left the treeline for the open grasslands of the savanna an aircar detached itself from the main Academy complex. Haret and I dropped tiredly to our haunches as the car circled overhead and came to a landing a dozen yards in front of us.

6

The aircar pilot was a grey-clad Watchman with craggy face and a Levantine nose. In fact, if I had been at home, I would have guessed that he was Jewish.

"Duncan Allen MacElroy?" he asked.

I got to my feet and brushed off the dark loam that clung to the seat of my pants.

"The same."

"Well, howdy podner," he said, sticking out his hand. "Name's Dal Corst."

I took the hand and shook it. About halfway through the ritual, I stopped and stared at the newcomer. My mouth dropped open in surprise.

The words had been in good old American English, Texas dialect!

"Huh?"

He grinned. "You are from Arizona aren't you?" he asked, switching back to Temporal Basic.

"I was born in Michigan. How is it that you speak English?"

"I've spent a number of years on Europo-American."

"Where?"

"Europo-American. Your home timeline. When we first established our mission to New York, we did a survey of your literature to determine how much you knew about alternate universes. The term comes from some SF epic of the early nineteen-sixties. We liked it so much that we stole it."

Haret listened to this exchange quietly. The effects of the fifty-mile hike and a fitful night sleeping on the hard ground were beginning to take their toll on her.

"Good of you to meet us, Watchman," she said. "I'm not sure I could make it the rest of the way."

"My pleasure, Watchman-in-Training," Corst said, bowing deeply from the waist. "I have been looking for you two since your aircar was found in the bottom of a lake early this morning."

"Looking for us?" I asked. "Why?"

Corst looked around. The glow in the western sky was nearly gone and gloom had settled over the plain. "Perhaps we can discuss it inside. I feel a bit of a

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chill coming on." With that he loaded us into the aircar, Haret in the back seat, me beside him in front. He quickly lifted the car and turned its nose to point at the Academy complex ten miles away across the darkened grasslands. We floated serenely forward. Apparently, Corst was in no hurry to get home.

"I must say, Duncan, I found much to admire during my stay on Europo-American."

"What?" I asked. "We're just an average bunch of country bumpkins who haven't tripped over the secret of paratime travel yet."

He shook his head—an artificial gesture for a Taladoran. "On the contrary, you are a most interesting people. I'm thinking of writing a thesis concerning my experiences when I get the time. Your space program and environmentalists, for instance—two related phenomena that are unique throughout paratime."

"Huh? What has one got to do with the other?"

"Everything. They are two facets of your society's reaction to your lack of crosstime capability. Take your expression: 'There's only one Earth, so we have to take care of it.' Such a thought would never occur to a Taladoran or a Dalgir . . . especially not to a Dalgir. Why should it? The statement is demonstrably untrue. We have literally thousands of Earths at our disposal. Our resources are infinite while yours are very finite indeed. It colors the way we look at things."

I nodded. I had seen some of the Confederation's industrial timelines. They had smog problems that just wouldn't quit.

"I don't see what that has to do with space," I said. I was beginning to feel the effects of our jaunt through the wilderness myself. It was all I could do to keep my eyes open.

"But isn't it obvious? Europo-American is a single timeline on which all the frontiers have been explored. You are a maturing culture with no real horizons. So what do you do? You create your own horizons. Where others turn to paratime for their frontiers, you have been forced to turn your eyes to the endless vacuum overhead. You've sent men to the moon. No other timelines we know of has accomplished a similar feat. Why should they? They have an infinity of living, breathing planets to explore."

Looking at it that way, it made sense. The discovery of paratime travel automatically short-circuited any thought of space exploration. And why not? The alternate Earths had everything mankind could want.

We were halfway to the Academy when the conversation ground to a halt. I slumped in my seat, resting my head against the car window, my eyelids at half-mast, my brain in idle. I was too exhausted to even ask about the outcome of the battle we had witnessed the previous morning.

As we approached the main complex, I glanced down into the growing dark, idly trying to pick out my own barracks from all the others, thinking ahead to the comfort of the grav plates of my very own bed.

Suddenly, I was no longer tired. Adrenaline force marched my eyes to full alert. Something was wrong!

The Time Watch Academy is more

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than a place to train new blood for the perennially undermanned Watch. It is also a research center for the pursuit of knowledge in the field of temporal physics; a place for veteran Watchmen to return and hone their skills; a cultural center where young, able, questing minds could meet, exchange ideas, and bring forth new philosophies, thoughts, and art forms.

In other words, the Academy has an active nightlife.

As Dal Corst piloted the aircar towards the great inverted pyramid which is Academy H.Q., it occurred to me that the Complex's lights were overdue to be turned on. We passed over a mile long strip of dark dormitories, cafeterias, laboratories, simulators, and exercise courts. I had spent fully six nights out of ten over the last year studying at the great central library. Its facade of brilliantly colored lights should have been a beacon visible from a hundred miles out. Yet, as we passed not fifty feet over the library's roof, the normally scintillating walls were lifeless.

"Where have all the people gone?" I asked. "And why are the lights out?"

"Most have returned to the Confederation," Dal said, as he landed the aircar in front of Academy H.Q. "The raid has the Ruling Council shaken up. They have ordered both Salfa Null and Salfa Prime evacuated."

7

Headquarters was a tomb compared to the few other times I had seen it. Record boxes were scattered everywhere—each with its thousands of computer crystals—and the normally immaculate offices showed the effects of a hasty retreat. Everyone we passed seemed to be in a mad hurry.

Dal Corst paid no attention to the pandemonium around him, but led us straight to the grav chute and up to the top floor. He entered a conference room and whistled the lights on.

"Take any seat that has a good view of the screen."

Haret and I plunked ourselves down in two high-backed chairs just as the wall screen at one end of the room lit up to display a paratime flow chart, a three dimensional representation of the relationship between a number of timelines.

Making sense out of a paratime map is a job for experts—which I was not, not by a long shot. Even so, I recognized the diagram on the screen. It was a representation of the major timelines of the Taladoran Confederation including the major temporal portals which interconnected them.

The Confederation is a group of twenty-seven timelines banded together for their mutual protection, the classic example of an interdependent timeline cluster. We had studied the mathematics of the situation in temporal physics, not that I came close to mastering them. The math was esoteric enough to give even Albert Einstein a headache. Instead, I fell back on analogy.

The way I looked at it, the timelines of the Confederation were like the strands of conductor in a telephone cable that has lain too long under the city streets. When the cable insulation begins to break down in spots, a short-circuit forms and an electrical arc jumps from one strand to another. Wherever such an arc occured, there a gateway formed between the timelines.

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Dal Corst touched a control, and the hologram hanging in space just in front of the wall screen changed. It was now a closeup of one section of the original diagram, the section showing the relationship of Salfa Null and Salfa Prime to the home lines of the Confederation.

"The problem is simple," Dal began without preamble. "The Dalgiri shuttle that raided Salfa Prime yesterday morning did not come through this timeline's only portal. It first appeared southeast of our defense batteries, moving at high speed directly toward the jump point for Salfa Null."

"But I saw shuttles materialize in the portal," I said.

"What you saw were Taladoran reinforcements coming through from Jafta in response to the Academy's call for help. I repeat: The Dalgiri raider did not come through the portal."

"But that's impossible," Haret said. "It had to."

"Impossible or not, it didn't," Dal replied.

"There must be another congruency on Salfa Prime, one we haven't discovered yet."

"No, we checked. There is only the one."

Haret shut up, a troubled look on her face. I could see what was bothering her. If the Dalgiri shuttle hadn't come through the portal, that meant that the Empire had made a breakthrough. If the Dalgiri could come and go anytime they wanted, no one throughout paratime would be safe. Pandora's box was wide open and there was no one to close it again.

"Is that what caused the evacuation order?" I asked.

"Of course. This Academy represents a major investment for us. We cannot afford to risk its destruction, not with the Watch so undermanned. Do you know what the loss of twelve thousand Watchmen-in-Training would do to us for the next generation?"

"Then we are defeated," Haret said. "The Dalgiri are free to raid us wherever they wish."

"Maybe," Dal said. "Then again, maybe not. There are some things we do not understand yet about our raider."

"Such as?"

"Such as the fact that he quickly destroyed our two fixed batteries, but did not move on the Academy itself until it was too late. It was almost as if he was as surprised to see us as we were to see him."

"So?"

"Why did he appear here if he wasn't expecting a fight? Maybe he didn't have any choice in the matter because the line he transitioned from is nearby."

"Then he would have to come from Salfa Null," Haret said. "In terms of overall energy potential, that is the timeline that is closest to this one."

"Maybe not." Dal Corst pressed the screen control once more and an entirely new diagram formed in thin air. This one was completely different from any I had seen before.

"We have been experimenting with computer representations of paratime recently in the hope of improving our understanding of paratime interconnectivity. This is such a model of the Salfa Null/Salfa Prime couplet. You will note that these two timelines form an interdependent cluster with a theoretical third line, one which we do not have

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access to," he said solemnly.

I looked at the screen and fixed my gaze on a reddish, twisting, worm trail that threaded its way through the green lines of the Confederation and its possessions. Nowhere along the new line's length was the bent trapezoid symbol that indicated the presence of a temporal portal connecting it to a Taladoran timeline.

"You think the Dalgir was from this hypothetical third line?" Haret asked.

Dal scowled. "That is what we are going to find out."

"How?"

"We've plotted up a sequence of temporal passages which should allow us to reach the line in question. Unfortunately, the last jump is from a line friendly to the Dalgiri Empire, so there is risk."

"Why us?" I asked. "More specifically, why me? I've only been training here for a little more than eighteen months. Surely you should have a crew of trained Watchmen."

Dal's face lit up with a smile reminiscent of the Mona Lisa. I wondered briefly if he had ever seen the painting and was doing it on purpose. "When I was given this assignment, Duncan, I thought immediately of you. You are my . . ." His eyes went blank for an instant, as though he were consulting an overstuffed mental file. ". . . rabbit's foot. I believe that is the expression."

"Huh?"

"I was on duty in our control center in New York the night Jana Dougwaix reported that she had killed a Dalgir and had taken an outtimer into her confidence. And later when she informed me of what she had discovered concerning the Dalgiri objective, it was I who gave her permission to invite you to join the Time Watch.

"You are the only individual in the whole Confederation whose survival is preordained. Who would be better on a mission into the Empire? Besides, I was impressed by your people during my stay on Europo-American. You do not think as we do. It will be useful to have you along for your different viewpoint."

"What about me?" Haret asked. "I have no such qualifications."

Dal turned to Haret. "Your record is good, and quite frankly, I haven't the time to search out anyone better. Does that bother you, Watchman-in-Training?"

"A little."

I looked at Haret and she looked back at me. Neither of us said anything for a long time. Finally, I cleared my throat and turned to Dal Corst.

"When do we leave?"

8

It was to be a journey of six stages, a tortured path that crossed half-a-dozen timelines to reach the hypothetical Dalgiri base.

The first two transitions proved deceptively simple. Within half an hour of our arrival at the Academy shuttle port, we were at the Salfa Prime gate, making the jump to Salfa Null in an instant. Then it was a few hundred easy miles to the portal that would take us to the Association of Rivan City-States, one of the lesser timelines in the Confederation. After the Salfa Null/Riva transition, things began to drag a bit. Our next connection was halfway around

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the planet. There was time to think.

And I discovered a universal constant.

The shuttle was the standard Taladoran design, a fifteen meter long, elongated ebon egg. As soon as we cleared the congruency, Dal Corst lifted it high into the stratosphere and headed north over the pole. Our next jump would take place over an ersatz Kansas prairie in fifteen hours.

"Why so long?" I asked.

"Rivan regulation," Dal answered, throwing the words carelessly over his shoulder as he punched our course into the navigation computer. "We aren't allowed to exceed the speed of sound over land. The sonic shock would disturb the people living below."

From that point on I had a name for our blackened steed. Within the privacy of my own mind, she was *Concorde*.

Following Riva, we transitioned to a bleak, desert landscape where hurricane winds scoured topsoil from the plains below, blackening the sky with their load. Ahead lay a ten-hour flight as we recrossed what should have been the Atlantic Ocean, but wasn't. After an interminable time, the barren landscape below was replaced by a lush rain forest of oddly yellow-green vegetation.

"Where are we?" I asked, peering at the screen in front of the pilot station.

"This timeline hasn't got a name, just a number," Dal said, reeling off a string of figures longer than a Florida driver's license.

"Where should we set down?" Haret asked, her attention riveted on the detector readouts.

I mentally counted the number of transitions we had gone through and came up with a total of five. That meant that the final jump was coming up. Unfortunately, the congruency we would use for the final leg of our journey could have been labeled Old Faithless. It formed and dissolved on a maddeningly irregular schedule. It would be ten days before it was open again. There was no rushing Father Time, so we would have to sit down and await the inevitable.

"I would suggest a lake."

Lakes are plentiful in rain forests it seemed, so we had no difficulty finding a suitable candidate in which to hide the shuttle. We were in Dalgiri territory and had to keep under cover. After sinking the black shuttle beneath the dark blue waters of a deep mountain lake, we set up camp on the shore and resolved to enjoy our period of enforced relaxation. In the daytime we hiked, fished, swam, and basked in the sun. At night, we sat around a campfire in a nearby cave—its light well shielded from above—and talked.

No matter what subject we started with, before the evening was over the talk always came back to the same thing:

Paratime!

"I don't get it," I said on our next to the last night in the cave.

"Don't get what?" Dal asked absently. His attention was focused more on the wild pig roasting over the fire than on me.

"These doorways between universes. Why do they tend to form in one place and stay there?"

He scratched lazily and looked up. "I don't get you."

"Well look." I grabbed up a pointed stick from our woodpile and began to

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make drawings in the dirt floor.

"Uh oh," Haret said, "he's starting to scratch in the mud again."

We all laughed as I continued to wield my pointed stick. It seemed that no matter what, I didn't consider the evening complete until I had drawn at least one diagram to get my point across.

"Here's the sun," I said, drawing a crude circle in the center of the cleared space. "It's going off like so as it revolves around the center of mass of the galaxy. Now here we are on Earth . . . " I used the Temporal Basic word which, of course, meant exactly the same thing, " . . . and it's revolving around the sun. Now, to complicate matters more, the Earth is revolving on its own axis, meaning that we are speeding along at about a thousand miles an hour on top of everything else. You with me so far?"

They 'nodded.'

"So how can time gates be fixed in space with respect to this whirling dervish of a planet?"

Dal sat back on his haunches and looked at me with serious eyes. "If I remember, Duncan, your people have developed the theory that space is stretched in the region of large masses, have they not?"

"Curved," I said, nodding. "That's one of Einstein's theories."

"Curved then. Can you not see that it is this curvature that is one of the prime components that go to create the conditions which cause a gateway between universes to form in the first place?"

"No."

"It's a matter of energy. In theory, we could jump any size temporal barrier if we just had the energy available to us. Of course, we don't and are severely limited in our abilities.

"All forms of energy—potential, kinetic, entropic, temporal—are conserved in a paratime jump. That is a basic law of *the universe*. The portals are just places where the energy level between universes almost matches. Our paratime generators make up for any shortfall on either end.

"Is it not obvious that a congruency must share the Earth's rotation? Are not the lines of constant spatial curvature, in effect, spinning in harmony with the mass that creates the curvature in the first place?"

I looked at the diagram I had drawn and shrugged. It wasn't obvious to me, but I would take his word for it. He was the expert.

Dal grinned like the canary who had swallowed the cat.

"What's the matter?" I asked.

"I've been wondering if I made the right choice of personnel for this mission. You have just confirmed my original opinion."

"Huh?"

"Not one Taladoran in a thousand understands what you have just explained. We paratimers still think of the Earth as the center of the universe . . . because to us, it truly is. Your people, with no place to go but out into space, have a much clearer world view than we. Beyond the atmosphere, you are the sophisticates and we the primitives."

"Just call me Copernicus," I said, matching him grin for grin.

His expression changed to one of

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puzzlement and perplexity.

"Who?"

9

Forty-eight hours later we were once again aloft. Dal sat rigidly at the controls, scanning the screen in front of him, while Haret bent over her instruments. I tried to stay out of the way while at the same time watching everything at once.

Somewhere in front of us two universes were slowly drifting towards congruency with each other.

"Fifty *centi-bora*," Haret said.

Another eight minutes and we would be through. I felt a chill run down my spine as anticipation mounted in *Concorde's* cabin.

Outside, it was early morning.

Ten miles below, a yellow-green rain forest stretched to the horizon and a thousand patches of water glowed with reflected fire as the sun climbed the eastern sky. Of the soon-to-be-formed portal, there was no sign.

Of course, there wouldn't be.

"Trans-temporal field," Dal said. A low hum was added to the gentle whisper of the lift-and-drive generators. The transition generators had begun accumulating the charge that would soon drive us to another world.

The sound reminded me of the topic of discussion for our last night in the cave.

"I just don't see it," I had said, once more seated with drawing stick in hand. "If there can be congruencies between separate universes, why not between two points in the same universe?"

"What would be the use?" Haret had asked.

"You could travel between the congruencies in exactly the same way you now travel between universes. It would be practical teleportation. No more ten-hour jaunts between jumps. Every point on the planet would be no more than an instant away."

Dal Corst looked thoughtful. "It might be possible," he said, scratching at a week-old growth of beard. Our fortnight in the sun had caused us to go a bit native. None of us were looking forward to returning to the quest on the morrow. "I can't be sure until I look at the mathematics, of course. Seems to me that you can't operate a temporal generator between two points in the same gravity field, but maybe."

"Twenty *centi-bora*," Haret said, snapping me back to the present. "The energy differential is dropping nicely."

"Stand ready for trans-temporal transition," Dal sang out.

Concorde began to slide forward toward the invisible gate between worlds, gathering speed by the second.

The normal procedure for passing through a time gate is to hover within the volume of congruent space and trigger the transition generators in an instantaneous burst of fifth dimensional lightning. There are good, practical reasons for getting rid of all forward velocity prior to the jump between universes. If the energies of transition are not precisely balanced, the offending shuttle will disappear in a flash of blinding light.

But hovering within a portal is a good way to get your ass shot off on the other side.

Since we had no way of knowing who—or what—was waiting for us, we were using a riskier procedure. Dal

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drove *Concorde* forward at full power, accelerating until we were traveling at nearly Mach Three. Then, in the seconds after the gate formed (and hopefully before any defenders on the other side were ready), we would dive through the hundred meter, irregular volume that was the congruency and trigger our generators. If everything went well, we would pop out into a new world like an avenging angel, and be over the horizon before the hypothetical defenders could react.

If it didn't, if the generators discharged a millisecond too early or too late . . .

"Coming up on the portal," Dal shouted. "Hold tight, we're going through!"

The green plain continued to slip beneath us while the deep purple sky remained unchanged. Suddenly *Concorde* lurched as though in turbulence, and the world below turned white. A blanket of clouds covered the Earth from horizon to horizon, and early morning turned suddenly into high noon.

Dal turned to Haret, his face split by a wide grin. He opened his mouth to speak . . .

. . . and the world exploded around us.

10

I woke to the sound of coughing and opened my eyes to a darkened universe turned topsy-turvy. The coughing came again and I realized that it was coming from me. After the spasm passed, I looked around.

Concorde lay on her back. Dal, Haret, and I hung from the ceiling like prime slabs of beef, held in place by our safety harnesses. I peered forward through the gloom. There was nothing to see except the dim outline of my two teammates' heads and arms hanging limply below the deeper shadows that marked their seatbacks.

I groaned and reached up to unsnap my harness.

The next thing I knew I was in freefall, barely managing to get my arms below me to cushion the impact as I slammed into the hard overhead below me.

I lay where I fell, taking inventory of my situation.

Those few seconds after transition were a jumble. First there was that flash of light, and then . . . what?

I seemed to remember Dal using a few words of Basic that the teaching machines hadn't tuaght me as he fought his crippled craft. From the tone, I felt sure that most four letter words in Temporal Basic had at least three syllables.

Haret's voice had been remarkably calm throughout those few moments after the explosion. I distinctly remembered her reading from the emergency checklist even as we plummeted toward the blanket of clouds below.

"What happened?" I had half-asked, half-screamed.

"Fixed battery," Dal said. "We were unlucky. Now shut up and let me get this monster under control."

He struggled for an eternity that lasted no more than thirty seconds before throwing up his hands in disgust and mouthing another short, pungent comment. This one I recognized. He could only have heard it on the streets of New York City.

"Hopeless," he said, reaching out for the control panel. "Hang on, I'm

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going to jettison. No choice."

A giant fist slammed into my spine before his words stopped echoing through the cabin. After that, there was only darkness for an interminable time until my own hacking woke me.

I gathered together what little strength was left and hoisted myself to a sitting position. Nothing appeared to be broken. At least no excruciating jab of pain greeted my experiments.

I crawled to where Haret and Dal hung from the ceiling like two flies caught in a spider web. Haret moaned as I unstrapped her and gently lowered her to the overhead cum deck beneath us. She stirred, and peered upward into the gloom.

"Duncan, are you all right?"

I nodded, forgetting that the gesture would be meaningless to her. I reassured her with a few words and turned to Dal. He was a lot heavier than Haret and a much more awkward burden as I lowered him from his upside-down perch. Somehow his limp body got away from me and the next thing I knew, I was on the bottom of a pile of humanity, gasping for breath.

"How is he?" Haret asked after I had squirmed my way from under.

"Alive," I said, leaning over to place my ear against his chest. "Not responding though. I need light."

There was a soft scrabbling sound from the rear of the cabin and suddenly lights blazed forth from beneath us. The sudden brightness stabbed daggers of pain into my eyes.

In the light, Dal didn't look too bad. I ran my hands over him, checking for broken bones. There weren't any that I could find, but there was a nasty bruise on his head, just above the hairline. I brought my hand away covered with blood.

"Possible concussion," I said. "How about you? Are you hurt?"

She 'shrugged.' "Apparently not. Where are we?"

"Good question," I said, moving to the rear hatch, the one that led back to the staterooms and the engine compartment. Correction: the one that used to lead to the staterooms and the engine compartment. Upon opening it, I discovered a forest panorama of dark green trees and underbrush, and a leaden sky. A slow drizzle fell from the solid bank of clouds overhead.

I glanced at Haret over my shoulder. She was making Dal more comfortable. "I'm going to look around a bit."

"Don't get lost," she said. In spite of the forced calm of her voice, I could hear the underlying terror at the thought of being left alone on this strange world with an unconscious Dal Corst.

"I won't," I said.

I stepped from the security of the flight cabin to the cold drizzle outside, shivering slightly as I did so.

11

Concorde had come to rest on the side of a hill. What had once been the flight cabin lay majestically in a bower of ruined pinelike trees and deep brush, its cable-encrusted belly pointing toward the sky. Of the rest of the ship, there was no sign.

I walked carefully around the capsule, scanning the forest and sky for signs of civilization. There were none. For all I knew, we were marooned on an uninhabited timeline with no hope of rescue. I ruthlessly put the thought

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from my mind. Even the Dalgiri would be preferrable to that. With them we would have a way home if we were clever enough to seize the opportunity.

Besides, we had been shot out of the sky. What could be more civilized than an automatic gun programmed to shoot strangers down the instant they appeared?

Back inside the cabin, I closed the hatch and returned to Haret's side. She was bandaging Dal's head.

"Any change?"

"No. He sleeps peacefully . . . too peacefully. We can only pray that he comes out of it on his own."

"Damn!"

"What did you find outside?"

I reviewed what I had seen. Haret listened intently, her lips pursed in concentration. I finished all too quickly with: "It's too bad about the clouds. We might have been able to see signs of civilization on the way in if it weren't so goddamned overcast."

"And those who shot us down could have seen us as well. Be thankful for the weather. It has probably saved our lives . . . for a while, at least."

"Where's the weapons locker?"

"Through the door behind you, second bin on the right," she said, gesturing with her eyes.

I straightened up from my crouch, and stopped in mid-movement. I had already been through the door behind me. There was only forest on the other side. I sat back down, letting myself drop heavily to the overhead.

"The weapons were in the back of the ship?"

"I'm afraid so."

I repeated the short, pungent English word Dal had used earlier. Somehow it made me feel better.

We spent the rest of the daylight hours inventorying our miniscule supplies. The tally was disheartening. We had no food, no water, no weapons. By dark, even our lighting system was starting to show the strain. We switched off the lights to save the power packs. I clutched a pair of night vision glasses in case we received visitors during the night while Haret fell asleep in my arms.

Over the next three days we set up housekeeping in a clearing a quarter mile from the wreck. We built a crude lean-to, and I snared a few rabbits to eat. Haret tended Dal and a small campfire.

By the end of the third day we had settled into a routine of sorts.

"I've been thinking about rabbits," I said, skinning one of the big jacks that I had managed to snag earlier.

"What about rabbits?" Haret asked as she roasted another small carcass marshmallow-style over the fire.

"Why rabbits? Why not little furry dinosaurs, or walking jellyfish, or birds with teeth?"

"I don't understand."

"The various universes of paratime have been separate since the Big Bang, right? So why all the similar fauna and flora? They should have developed as independent timelines, with no common heritage at all. Just because my line grew people with two arms, two legs, and a head; why should all the other timelines copy us so closely?"

She hesitated a moment before answering: "No one knows for sure."

"Huh?"

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"Oh, there are theories, of course. Most think there is a natural cross-pollination between timelines, that under rare conditions the temporal barriers can break down the animals—or human beings—accidently cross from one universe to another. Nobody has yet come up with a mechanism that explains how such a thing could happen, but that is the theory."

I thought about it. It made a little bit of sense. Weren't people always disappearing mysteriously? Why not Mother Nature's own version of a trans-temporal shuttle? It was certainly more believable than a billion cases of parallel evolution.

I was jolted out of my reverie by a sharp intake of breath from Haret. Her face was suddenly bone white with fear.

"What's the matter?"

It took her a moment to find her voice. When she did, she spoke in a husky whisper: "Behind you, four men sneaking up on us. I don't think they realize I've spotted them."

My mind raced for a few seconds as my eyes darted all around, seeking a way out. I thought up a dozen daring escapes in as many seconds, discarding each as quickly. The sharp snap of a twig breaking underfoot echoed through the clearing and I did the most intelligent thing I could think of.

I stood slowly, keeping my hands well away from my sides, and turned around . . . smiling.

12

They were all seven-foot-tall, red-bearded conquistadors.

At least that was my first impression. It didn't last long. On second glance I realized that their armor was nothing like that of sixteenth century Spain. Only the peaked helmets were similar. Otherwise, they wore leather cuirasses something like those of the Romans, and green-tinted jackboots. Each man had a long sword strung across his back, secured in place by the Sam Browne belt that draped from left to right across their chests. At their belts, two of them wore heavy handled daggers, almost trench knives with full knuckle duster grips.

But what interested me most were the muskets they held in their hands. I found myself staring down four gaping, black muzzles. The stocks, which I couldn't see very well because of foreshortening, looked to be more Afghan than Western in style. The firing mechanism was a cross between wheel lock and flintlock.

I smiled and raised my arms with palms upright in front of me.

"Friend," I said, feeling silly as I said it.

One of the men with slightly more ornate leatherwear than the others opened his mouth and spoke a short sentence. The words were gibberish, reminding me a bit of dogs barking. Whatever they meant, they had the sting of command in them.

"What do you think?" I asked Haret over my shoulder.

The order came again, this time accompanied by a sharp gesture from a musket barrel.

"He wants us to move away from Dal, I think," Haret said.

That was the way I had read it. 'Exit stage right or get your head busted' seemed to be the gist of the conversation so far. We backed off a few paces.

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Another sharp command split the cool air and the number four man lowered his weapon and crossed the clearing until he stood over Dal. We had been pouring broth of rabbit soup down Dal for two days and he had instinctively swallowed, but otherwise showed no signs of waking up. The native leaned down and expertly ran his fingers through Dal's hair. He obviously knew what he was doing as he quickly found the dent in the Watchman's skull.

There followed a quick conference of barks which suddenly ended in more orders. Almost before I realized what was happening, rough hands grabbed me by the arms and pulled until my wrists were crossed behind me. I stood rock still while a rawhide strap was fastened around them. When I was securely bound, my two captors crossed to where Haret stood and repeated the performance.

When we were both secured, they turned their attention once more to Dal. I got the impression the two younger captors—teenagers with scraggly beards and advanced cases of acne—wanted to kill Dal and save the trouble of transporting him. The third underling, the one who had played Doctor, seemed indifferent. However, the Leader was obviously loath to lose even one captive and after a few minutes arguing, he had his three companions in the forest cutting wood for a stretcher while he leaned on the barrel of his gun and eyed us warily.

Within half an hour the whole party was headed through thick forest downhill toward the small stream Haret and I had found the first day. The Leader walked at the head of the column, followed by us, followed by the sharp-eyed Doctor as guard. The two juvenile delinquents brought up the rear, grumbling. It was to them that the job of carrying the stretcher had fallen.

At the stream we found four shaggy horses tethered on a picket line run between two trees. There were more discussions concerning the rigging of a horse litter, and a brief rest while the litter was being constructed. Then, suddenly, we were off again. This time, however, the Leader and the Doctor rode while Haret and I stumbled along behind. The other two followed with the litter bringing up the rear.

We walked for the rest of the day, always moving downstream, stopping only when it was too dark to see the river rock and broken branches underfoot. Haret and I spent a fitful night huddled together, trussed up like a couple of prize pigs. Then it was up at dawn, a light breakfast of leathery dried meat, and off again.

It wasn't until midday that we finally left the forest and entered a wide clearing of knee-high brush and wild flowers. By this time the stream had grown into a respectably sized river. I sank gratefully to my knees as the leader called a momentary halt. I looked up.

In the distance, sitting on top of a faraway hill, its outline dimmed by blue haze, was a castle right out of a Hollywood swashbuckler.

The Leader turned in his saddle and followed my gaze.

"Fyalsorn," he said, pointing.

"Right, boss. Fyalsorn," I said, nodding.

Evidently, that was our destination. It looked like we had arrived.

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13

It took another six hours of walking to reach the gates of the city that surrounded the hilltop castle. It was a walled city of typically narrow, winding streets where the buildings tended to squeeze out the little sunlight that made it through the clouds.

We trudged through the gathering gloom along crowded thoroughfares with all of the stinks of any oriental bazaar. My nose quickly told me that the locals ate beef, had a knowledge of spices ranging from mints to cloves, and grew a particularly offensive variety of tobacco. Overpowering all of these olfactory stimulants, however, was the smell that emanated from the dirty little stream that flowed down the center of every street.

"What do you think of the local color?" I asked Haret, who stumbled along beside me. I could tell by her expression that the rawhide straps chafed her as badly as they did me.

She smiled grimly. "I believe I understand the reference," she said, wrinkling her nose. "It isn't the 'color' that bothers me."

We reached the gate of the castle by full dark. I was panting from the exertion by the time we reached the top of the bluff overlooking the town. Even so, I stared in wide-eyed wonder. Castles are out of style in the world I came from.

Fyalsorn—if that was the name of the castle and not the town—was obviously intended to be a working fortress and not one of those fairyland showplaces much favored by mad Kings of Bavaria and others. It was built from sandstone blocks, complete with battlements, turrets, and towers. We crossed a drawbridge that spanned a hand-carved chasm and entered the courtyard just inside the gate. It was there that I got my first surprise.

I had subconsciously pegged our 'hosts' at sixteenth or seventeenth century Europe. But sitting to one side of the courtyard, puffing and billowing black smoke from a tall sandstone chimney, was a coal-fired, walking beam steam engine. That was the least of the surprise, however. The armorers of the fourteenth century could have built a simple steam engine if they'd known how. The technology for placing a man inside a removable covering of plate iron light enough to allow him to sit a horse was every bit as complex as boiler making.

But our captors had gone far beyond mere steam. Attached to the engine was a crude electric generator. There was no doubt about the nature of the big turning wheel becasue the interior of the courtyard was illuminated by the harsh glare of carbon arc lamps mounted high on the surrounding wall.

"A fairly advanced timeline," Hart said, looking around. "We should be able to deal with them."

I nodded. "If they don't sell us to the Dalgiri first."

The four riders dismounted and let castle guards take their mounts. Other guards unstrapped the horse litter from the fourth animal and it too was taken away. We were ushered up a flight of stairs into a great hall lit by more harsh electric arc lamps.

At a barking command from the Leader, we stopped in the middle of the great hall while two castle guards cut

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our bonds. Within seconds fire coursed through my hands as blood began flowing once more.

When the worst of the burning had turned to pins and needles, we were ushered through a doorway and up a long spiral staircase. There was a locked door at the top. One of the guards inserted a great iron key into the huge padlock. The door swung out on silent hinges as our whole party clumped inside. The Leader used a tinderbox to light a candle, and pointed out the various refinements in the room. They consisted of a straw stuffed mattress of canvas ticking covered by a scratchy army blanket, a rough hewn table on which the candle and an earthen pitcher sat, and an oaken bucket filled with water. I puzzled over the latter until I realized that it must be the sanitary facilities.

Our guards stomped out in their mud covered boots and the Leader paused to say something before exiting through the door and closing it behind him. There was a brief clanking as the lock was turned, followed by the sound of footsteps retreating down the stone staircase.

"What do you think the noble said just before he left?" Haret asked.

"Could have been anything from 'Have a nice sleep' to 'Welcome to the Tower of London'."

"*Welcome to what?*"

"Never mind."

"What about Dal? Do you think they'll harm him?"

"Why carry him all that way and kill him here? They probably took him to their hospital, assuming, of course, that they have one."

"So what do *we* do?" Haret asked, looking around the bare room. The wind outside our tower cell moaned as it whistled through the chinks in the masonry. The renewed patter of rain could be heard bouncing off the stained glass window opposite the bed.

I shurgged. "Get a good night's sleep. What else can we do?"

We slipped out of our dirty grey jumpsuits and crawled beneath the equally dirty grey blanket. I reached out and snuffed the candle flame between thumb and forefinger. Haret was a silken spot of warmth in an otherwise prickly and cold universe as we held each other close. We lay there in silence until her shoulders began to shake with quiet sobs.

"What's the matter?" I whispered.

As if my speaking were the cue, a soft mewling sound emanated from her throat and tears flowed freely as she buried her face in the cradle formed by my upper arm and chest. I held her close. Eventually the sobs subsided.

"Better?" I asked.

"I'm frightened, Duncan. What if they are clients of the Dalgiri?"

"We'll cross that bridge when we come to it. In the meantime . . ."

I searched for her lips in the darkness and quickly found them. Then, as if driven by demons, we moved on to greater intimacies. In spite of the grueling day we had had, neither of us slept until well after midnight.

14

Language lessons began the next morning after a breakfast of what could only have been the porridge so famed in fable and rhyme. Our teacher was a stooped old warrior with arthritis so bad

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he could barely walk. His name was Argor, and beneath that twisted frame was a mind as sharp as tacks. Like everyone else we had seen, he was a redhead, although his mane was diminished by a large bald spot and a generous wreath of grey hair.

At the end of the first week of dawn-to-dusk sessions, both Haret and I had a smattering of the local language. The language was *Swajorn,* the castle was indeed Fyalsorn, and the town which we could open our window and gaze down upon was Fyalsorn-Daya—literally, the city under the protection of Fyalsorn Castle. The master of the castle was Lord Ryfik, whose son, Lord Gosfik, had been the leader of the party that found us.

As quickly as we had the vocabulary, we asked Argor about Dal.

He looked at us with rheumy blue eyes and said something I almost understood. After fifteen minutes of hard linguistic work on both sides, it developed that Dal was under the care of the castle Chirurgeon. I quizzed Argor for several minutes before settling on 'Chirurgeon' as the translation. Somehow Argor's explanation of what a local physician was just didn't fit 'Doctor.'

By the end of our second week of captivity, we were almost carrying on real conversations.

"How long are you going to hold us here, Argor?" I asked after lunch one day. The meal had consisted of a loaf of unleavened bread and a generous helping of roast beef well carbonized.

"That is for Lord Ryfik to decide, Honorables."

It seemed that both Haret and I were 'honorables.' No one would tell us why. Whatever the reason, it probably accounted for our quarters in the tower and not in the castle dungeon. I had already pried the information out of the guards that they had one.

"What of our friend?" Haret asked. "You have told us nothing since he regained his senses three days . . . uh, begone."

"Thy friend has a hearty appetite and gains strength with each passing night. Ere long, he will join thee here."

It was three days later that Lord Ryfik summoned us before him.

The Fyalsorn Council Hall was big and empty. It reminded me of a church on Tuesday morning. A half-dozen flying buttresses swooped overhead, adding greatly to the impression that the room was more a part of a cathedral than the hall of state of a busy functionary. The stained glass skylights far overhead reinforced the image.

Ryfik himself was as impressive as the room. He was a tall man with muted red hair. Specks of grey colored his temples and a scar ran diagonally across his right cheek. His complexion was a darker version of the red-cheeked, peaches and cream hue that appeared to be the local norm. He was conspicuous for his lack of a beard.

Haret and I marched down the aisle of the Council Hall and stopped a dozen paces from the throne as we had been instructed. As far as ceremony was concerned, that was it.

Ryfik looked us over in our grimy jumpsuits and signaled to one of the castle guards standing inconspicuously in the shadows along the side of the hall. The guard left through a side door—leaving plenty of others with

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their weapons at the ready—and returned holding an unsteady Dal Corst by one arm. The guard helped him to the center of the hall where we were standing.

Haret and I surrounded Dal as soon as the guard let him go. Haret kissed him and I pounded him on the back. He seemed disoriented for a moment, and then stiffened his backbone.

"Report, Watchman. What in the perils-of-paratime is going on here?"

I gave him a thumbnail sketch of what had occurred since we had transitioned the portal, a sort of how-things-got-so-screwed-up in twenty-five words or less. Then Haret took over and tried to fill in some of the gaps I had left. Ryfik watched this with interest for about two minutes and then noisily cleared his throat.

The three of us stopped and faced the throne.

It looked like court was suddenly in session.

15

"We have waited long for a chance to take some of thy people hostage, Honorables. What say thou concerning a ransom? Will thy King pay it, or not?"

Ryfik's voice boomed out over the empty hall, so much so that I suspected the palace architect must have had at least a working knowledge of the science of acoustics. He spoke slowly and clearly, enunciating more carefully than was normal in Swajorn. Even so, I had to mull his words over a bit before I could attach meaning to them. I suddenly realized what was wrong as I listened to Haret whisper the translation of what Ryfik said to Dal.

These people had mistaken us for the Dalgiri!

"You are wrong, Lord," I boomed out in my best imitation of Ryfik's baritone. "Those you would extort our ransom from are our sworn enemies."

There was a collective gasp from the ten to fifteen functionaries present. The echo had barely died in the great hall when I realized that I might have found a more tactful way of expressing myself. I turned to glance at Dal, who continued to stare straight ahead, his expression more determined than ever.

"You have it, Watchman," he whispered out of the side of his mouth. "For all of our sakes, make it good."

Ryfik, for his part, merely narrowed the slits that were his eyes a bit further.

"What say thou?"

I was in too far to back out now, so I set my feet and vowed to be hung for a lion if it came to that.

"Those who have wronged you are called Dalgiri. We are of Talador, and are their sworn enemies."

This set off an excited buzzing among the courtiers and their ladies, a buzzing that quickly died under Ryfik's withering glance.

"Explain, Honorable!"

I quickly gave him a sanitized rundown of the Taladoran Confederation's war with the Dalgiri Empire, carefully avoiding any explanation of where we all came from. I was willing to bet that these people had explored their own Earth well enough to know that we and the Dalgiri were from somewhere else. I hoped they had no inkling of exactly where that somewhere else really was.

When I finished, Ryfik leaned back and regarded us with suspicious eyes.

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"What say thou, son?"

Gosfik looked us over and shrugged in a very Europo-American gesture. "They are not the same as the others, that is true. But how to be sure they are not of the others? Perhaps we deal with two separate clans of the same kingdom."

"What say thou, Honorable?"

I shrugged, making it every bit as expressive as Gosfik had. "What can I say? If you believe us, perhaps we can help you against the Dalgiri. If not, then you are no closer to throwing off their yoke than before."

"True," Ryfik said deep in thought. He lapsed into silence.

Haret took advantage of the pause in the conversation to whisper in my ear. "Ask about the Dalgiri."

"How has my enemy wronged you, Lord?"

The tale was long in telling, but basically it seemed that the Dalgiri had been using standard operating procedures on this timeline. They had appeared one day and begun building a stronghold in a valley about fifty miles from the castle. Their base was a cluster of silver domes—Dal thought a research station when Haret described it to him.

The Empire's normal methods in such a situation were time-honored and very effective. They learned the language and culture by kidnapping victims from widespread locales and mindprobing them until they were little better than vegetables.

And that wasn't the worst of it.

Ryfik had organized a raiding party to show the newly arrived strangers the folly of trespassing on Fyalsorn territory. Luckily, it hadn't been much—merely twenty or so castle guards under the command of Ryfik's wife's uncle. None of the raiders had returned, although a couple of loose horses had wandered back home after a week or so.

And following the raid, the Dalgiri had taken to raids of their own. Outlying peasant villages were set upon by shuttles two or three times a year, presumably to teach the locals a continuing lesson. It was obvious from the way Ryfik's ministers told the story, that they thought their people were being held hostage in the station, insurance against Fyalsorn's good behavior. Such a system passed for statecraft in the local here-and-now.

I held a hurried, whispered conference with Dal and Haret. "What do you think? Do we tell them that their supposed hostages are all dead, or if not, would rather be?"

Dal bit his lip in indecision. "It might drive him over to our side, or it might throw him into an unthinking rage. You know what frequently happens to the bearer of bad news."

"Haret?"

"No opinion, Duncan."

"We've got to tell them something. See the way the Lord is squirming up there?"

"The truth then," Dal said, command in his voice. "It has been known to work on occasion."

So I told them the truth. I explained as graphically as I could the process of being psych-probed with emphasis on the condition of the probee afterwards. As I spoke, searching my limited supply of Swajorn for the right words, a hush fell over the assembled crowd. Ryfik's

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expression, which had started out merely interested, took on a dark scowl. By the time I had finished my little horror story, barely contained rage seethed within him just under the surface. I noticed more than one hand in the crowd reaching subconsciously for a weapon. I stopped talking in dead silence, a quiet suddenly interrupted by a single voice slowly sobbing.

I realized with shock that it was one of the hard-bitten guards that lined the side of the hall. No one seemed to notice.

Ryfik spoke finally, enunciating each word slowly and with emphasis, spitting them out as though they tasted bad.

"Is . . . this . . . true?"

"I swear it, Lord."

"We shall see. If this be true, I shall wage Holy War against these demons. If not . . ."

I nodded. If they thought I was lying, there would be hell to pay. The three 'Honorables' from far off Talador would find themselves guests of the Fyalsorn dungeon master.

I could almost feel the hot pokers under my fingernails already.

16

A few quick words from Ryfik and the public audience was over. Four of the most capable looking guards convoyed Dal, Haret, and me to the Lord's private quarters. There, clustered around a small chart table in front of a cozy fire, were Ryfik, Gosfik, our mentor Argor, and two worthies I tentatively dubbed 'Secretary of State' and 'Commanding General.' Ryfik's anger had cooled a bit, and an air of cold calculation had taken its place.

"Now, Honorables, if what thou say be the truth, there will be war. How do we verify thy story?"

Proving ourselves to Ryfik turned out to be a major undertaking. Haret and I took turns telling our tentative allies about our far away 'country,' and detailing what had happened from the moment we were shot down until Gosfik captured us. We answered questions for three hours, but we always seemed to come back to the same stumbling block.

How to prove that we spoke the truth?

Finally, Argor looked up from where he warmed his aching bones before the fire, and suggested a plan.

"This flying machine is near where young Gos' found thee?"

"Yes," I said.

Argor cleared his throat in a deep growl and turned to Ryfik. "Then, Lord, we have a means of testing the Honorable's truthfulness. Our fight with the invaders has not been totally without plunder. We have samples of the chicken scratching they use in place of honest Swajorn lettering. Surely if these three be of another Kingdom, their language will be different from that of the stooped ones."

I translated Argor's idea for Dal, who immediately agreed. "Of course! Why didn't I think of it? Dalgiri script is so different from Taladoran that even a blind man could see the difference."

I nodded. Dalgiri writing was reminiscent of Morse code—all dots and dashes—while Taladoran bore a striking resemblence to what Gothic script would look like if it were crossed with Arabic.

"Where do we find a sample of Taladoran script?" Haret asked.

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"That's why Argor asked about the ship," I said. "We take them to the emergency capsule, show them the lettering on our instruments, and they believe us . . . I hope."

The rest of the afternoon was taken up with the negotiations as to who would accompany the Fyalsornan party to the wreckage of our ship. A bargain was finally struck, one that I wasn't particularly happy with.

It was agreed that Dal and I would accompany Lord Ryfik, his son, and a heavily armed party back to our campsite. Haret would remain behind as a hostage.

We got started at dawn the next morning. For the first time since we had arrived on this timeline, there were patches of blue sky overhead. The party was nearly fifty strong counting our guards. When our sprare horses and pack animals were included, we made an impressive procession.

Dal and I rode behind the nobles while two sharp-eyed warriors rode behind with their weapons conspicuously loosened in their holsters. They made no attempt to keep us from conversing in Temporal Basic. Their sole duty was to prevent an escape.

"I want to compliment you on the way you handled the old fire breather yesterday," Dal said as we picked our way along the riverbank. He looked strangely at home in the leather riding outfit which Ryfik had supplied each of us.

"I had to do something," I said. "I'm certainly not much of a good luck charm on this trip."

"Nonsense. We're alive aren't we?"

"Not because of me," I said. "When I think of all the millions of others Jana Dougwaix could have contacted instead of me, people who can handle themselves in an emergency . . ."

Dal grinned. "We may ask you for a list of candidates sooner than you think."

"I don't understand."

Dal hesitated for a moment, as though considering whether or not to let me in on a confidence. "It's not for public consumption, but the Council has been watching your performance very carefully. There is considerable sentiment for inviting Europo-American to join the Confederation."

"There is?" The news wasn't as welcome as I had expected it to be. I couldn't quite put my finger on the reason behind the sudden dismay that I felt. It wasn't that I didn't like the Taladorans. I did. By most standards they were 'good people.' I guess the idea of the Confederation overpowering my home timeline bothered me. Oh, not that they would conquer us or anything like that. But culturally, Talador would do the same thing to Western Civilization that we Westerners had done so often to so many others. We would be annexed and overwhelmed. As provincial as Europo-American was, it seemed to me that we had something unique. I wouldn't be happy to see it destroyed.

"Most of the opposition in Council centers on the fact that Europo-American isn't part of our trans-temporal cluster," Dal said. "If we discover the Dalgiri process for doing without congruencies, that won't matter anymore. All of paratime will be accessible to us."

The conversation quieted down after

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that. We had entered deep forest and it was too difficult to talk while riding single file along the deer trails. It gave me a lot of time to think.

It was early afternoon when our outriders galloped back to tell us that they had spotted our camp in the forest clearing. I could feel the adrenaline coursing through my veins as I spurred my horse into a gallop toward the wrecked escape module.

17

Concorde's broken flight cabin was right where we had left it. Our troop of cavalrymen fanned out through deep brush as Lord Ryfik, Gosfik, Dal, and I dismounted to search the wreckage.

I led the way through the rear hatchway, showing Ryfik everything with Taladoran script on it. His alert eyes captured every detail, searching mercilessly for a slip that would prove we were lying. Finally, after about fifteen minutes of probing and questioning, he seemed convinced. Maybe it was the result of his own basic honesty or just the fact that he was desperate for allies in his fight against the invaders. Whatever the reason, he finally grinned and took my hand in the backwards grip that the Lords of Fyalsorn had used to seal their bargains for two hundred years.

"Welcome, friend," he said with tears in his eyes.

"May we fight well together," I said, doing my best to render my words in the same formal Swajorn that Ryfik had used. I then clasped arms with Gosfik while Dal did the same with his father.

When oaths of fealty had been exchanged all around, Ryfik turned to me. "Let us depart this coffin, Honorable. My back will be as curved as Argor's should I delay a single moment longer."

Ryfik, Gosfik, and I left the emergency pod the way we had come while Dal began pulling circuit modules from their holders. "Be out in a minute," he said. "These will be of use later."

I translated for Ryfik.

I've got to give him this much. If he suspected that Dal might be rummaging around in there for a weapon he never gave the slightest clue. This was apparently a timeline where a man's sworn word meant something.

Or maybe he just didn't have time to think through all the implications. As we emerged back into the sunlight, the quiet of the surrounding forest was disturbed by the simultaneous explosion of a dozen muskets.

There was a time when I would have stood dumbfounded and stared transfixed in the direction of the firing. Not this time. An instant after the gunshots echoed through the rolling hills and valleys around us, I saw something that chilled my blood and caused me to dive for cover. Up on the crest of the ridge on which *Concorde* lay, there was a silent flash of lightning, a flash that could only have come from a Dalgiri beamer.

There was considerable yelling and screaming from other parts of the perimeter as our guard force charged the area of battle. The firing began to pick up as more of them engaged the unseen foe. Twice, the trunks of trees exploded in geysers of superheated steam as beamer bolts struck them. And each time the firing came a bit faster afterwards. Lord Ryfik's men seemed fearless in the face of what to them must have been

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a weapon with mysterious properties.

After a few more minutes of staccato firing, the woods were suddenly quiet once more. I lay where I was with my nose buried in a carpet of damp pine needles, trying to see around a three-hundred-and-sixty degree circle without lifting my head. There was the noisy rustle of shrubbery from the direction of the battle. A burly noncom burst suddenly into view.

"What is it, Zoor?" Ryfik asked.

The guard bent over, resting hands on knees, as he panted from the exertion. But the story flowed out as fast as he could gasp for breath. "The . . . invaders . . . Lord. They were watching . . . Wrof and Birst stumbled on them . . . Wrof is dead. Birst won't last to see the sunset. I think we wounded one."

"Where are they now?" I asked, trying to keep the panic from my voice.

The guard looked at me, dubious. Ryfik ordered him to answer.

"They had a flying wagon and made good their escape."

"Aircar," I muttered to myself in English. "They probably went back for reinforcements."

"I don't think so," a voice behind me said in Temporal Basic.

Dal stood in the open hatchway of the escape module.

"What did the Honorable say?" Ryfik asked.

I told him and then turned back to Dal.

"If they found the wreckage, they must have found our camp and concluded that the locals had captured us. That means the two or three guards they left here were only supposed to keep wandering peasants away until they could investigate further.

"A much larger force would undoubtedly be dispatched to search for us among the locals. And the first place I'd look if I were the Dalgiri would be . . ."

". . . Fyalsorn Castle!" I yelped.

Dal agreed.

The news hit Ryfik like a sledge hammer after I translated for him. He uttered two words that were obviously oaths and began yelling orders in a tone that brought instant obedience. Within seconds the forest was alive with running horses and men as our troop began to assemble for the march home.

When they had gathered around us, Ryfik mounted up and told them the situation in a few, brief, scathing remarks. A low mutter rumbled through the ranks and there was much fingering of weaponry. "Home, lads," he concluded, wheeling his horse back the way we had come. "Fyalsorn is in mortal danger."

"Stop him," Dal yelled. "We need to strip the ship for parts. If we are going to successfully attack a Dalgiri research station, we are going to have to construct some modern weaponry."

I explained our need to Ryfik. I could see the inner turmoil as he ordered ten guards and as many pack mules to stay with Dal to strip the ship. In the meantime I swung up into the saddle and prepared to ride back to the castle with him.

I tried not to dwell on the obvious as we rode hard for Fyalsorn, namely that Haret was there. The thought of her falling captive to the Dalgiri sent shudders up my spine.

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The ride back to Fyalsorn was a nightmare. Ryfik pushed the column until full dark. He wouldn't have halted then if three horses hadn't stumbled in a span of five minutes, breaking their legs in the jumble of river rock we were trying to navigate.

"Call a halt, Father," Gosfik called out finally.

The encampment was cold, wet, and windy. No fires were allowed lest the Dalgiri spot them. Even if the portal was currently closed—a question Dal would have to address when he caught up with us—and they had no shuttle, their aircars would make short work of us if we were spotted.

The troop was in a foul mood the next morning when the order to mount up rolled through the camp. We were back in the saddle by first light and only paused every hour or so thereafter to change horses.

We spotted smoke on the horizon halfway through the morning. After that there was no holding Ryfik and his men back. We reached Fyalsorn-Daya just before noon.

Most of the fires in the town had long since burned out, leaving block after block of blackened ruins filled with smoldering charcoal. Here and there a few flames licked toward the sky. Ryfik didn't even bother to slow down. He clattered over rubble covered cobblestone past dazed townspeople, leaving the rest of us strung out for nearly a mile behind.

A quick glance around the courtyard of Fyalsorn Castle as we burst through the main gate offered ample proof that the fortress had suffered the same fate as the town. The keep was a burned-out hulk. A score of corpses lay in a neat row next to the remains of the steam engine, while others lay buried in the rubble from the south wall of the castle. The wall had been breached by a giant explosion.

As we pulled our sweating horses to a halt, the quiet man who I had dubbed 'Commanding General' rushed up to Ryfik. His face was contorted in pain and his right arm hung withered and useless at his side. I recognized the mark of a Dalgiri beamer bolt. Local medical technology being what it was, I knew I was looking at a walking dead man.

"Lord, thank the gods!"

"Report, Warough. How is my wife?"

"Safe, Lord."

"What happened?"

The story came boiling out almost too fast for me to follow. Three aircars had appeared above the castle about the same time we had arrived at the wreck. An amplified voice boomed out from the lead car demanding a parley. Warough told them what they could do with their request and the Dalgiri had opened fire.

The aircars' initial volley had sliced off the roof of one of the gun towers on the far side of Fyalsorn. An aircar had then landed while another sprayed covering beamer fire throughout the courtyard. The third had attacked the town. After five minutes or so, the grounded car had lifted off again and all three had converged on the tower where Haret and I had been held prisoner.

In the meantime, Warough had organized a defense of the main keep, and wondered at the Dalgiri tactics. I shook

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my head sadly as he came close to tears a dozen times during his report. If unusual for this timeline, the Dalgiri tactics were crystal clear to me.

Their primary mission had been to find the Taladoran castaways and they had gone about it in the most straightforward manner possible. The crew of the first aircar had put some hapless gunner through the wringer while the support cars kept the defenders heads down. When they had discovered the information they came for, all three cars had gone after Haret.

At least four Dalgiri had blasted through the courtyard wall into the tower, and fought their way up the spiral staircase to where Haret was. In the process they had left twenty defenders dead—including poor, stooped Argor. Warough wasn't sure, but he thought one of the Dalgiri had carried another slung over his shoulders when they returned to the cars. The two remaining Dalgiri had been seen forcing Haret into an aircar, and the little armada had lifted back into the sky.

Afterwards, the aircar carrying Haret had disappeared in the direction of the research station while the other two made a couple more passes at the castle and town to show their displeasure.

When Warough finished his story, Lord Ryfik took a long minute to look around him, taking in the destruction of ten lifetimes of labor. He turned to me, horror in his eyes.

"How many were there?"

I licked dry lips, wondering again if I had misjudged this man.

"Three aircars? If normal size, perhaps twelve to sixteen, Lord."

"Sixteen warriors have wreaked this upon us? What did the people of Fyalsorn do to deserve the plague which thou and thine have visited upon us, stranger?"

I searched for something to say to comfort his anguish, but came up dry. He had a point. Like so many others before him, Ryfik's first encounter with paratime civilization had not been to his benefit.

Dal and his pack train of spare parts arrived the next morning. By that time, Ryfik's feeling of helplessness had worn off and a deep, burning anger had settled over him. Dal arrived to find a Council of War in session among the ruins.

I quickly brought him up to date on everything that had happened. My voice cracked as I broke the news about Haret.

"Calm yourself," he said. "She is conditioned against psych probing, and therefore safe for the time being. Now tell me what our friend Ryfik has planned."

The plan was simple. Ryfik had sent riders to the neighboring lords with a levy for warriors. In some cases he was calling in I.O.U.'s of twenty years standing. In four weeks or so, everyone would rendezvous at Fyalsorn and march on the Dalgiri station, overwhelming it with sheer strength of numbers if need be.

"It won't work," Dal said, frowning.

"Huh? Why not?"

"Because the Dalgiri are isolated from their home timelines at the moment. The gate is closed again. It reopens in two Tendays. We must be in position to attack as soon as a shuttle

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arrives to take Haret back to Dalgir."

"Attack when a shuttle is here? Are you crazy?"

He looked at me as one does those poor unfortunates who can't be trusted with sharp objects. Finally, he spoke: "If we attack before a shuttle arrives, how are we going to get home?"

I opened my mouth to reply, then closed it again while Dal outlined his plan.

There is one time when a trans-temporal shuttle is vulnerable to attack—when it is grounded. Haret and I had had our aircar shot down back on Salfa Prime by a weapon designed to burn out shuttle lift-and-drive engines. We could do the same if we got our disruptor close enough. As long as it remained grounded, a shuttle could not use the continent devastating weapons it carried.

Building a disruptor should be easy with the spare parts Dal had brought back from the wreck. What I couldn't figure out was how he expected such a crude device to work unless someone succeeded in getting it to within a few feet of the shuttle before the drive field formed.

"Who's going to sneak this thing in through the perimeter alarms and radar-controlled beamers?" I asked.

Dal grinned. "I was thinking more in terms of a catapult."

19

I stifled a sneeze and glanced at my wrist chronometer. Less than thirty seconds now. In the valley below, nothing moved among the cluster of silver domes. There had been no sign of the research station personnel since midnight when we had taken up our positions high in the hills above.

It had been two Tendays since we had returned from *Concorde*'s remains to find Fyalsorn Castle in ruins. Those three weeks had been the busiest, most worrisome, of my life. Not an hour went by that one of us—Dal, Ryfik, Gosfik, or I—wouldn't glance nervously at the sky expecting to see the black shape of a Dalgiri shuttle materialize from the blanket of clouds overhead.

Between bouts of dread, we worked at the gargantuan task of moving nearly a thousand fighting men the fifty miles to the research station in secret. They rode in groups of six or seven, keeping to the deep woods. We sent riders to the neighboring castles—each more than a hundred miles away—to guide their contingents to the rendezvous points. By the seventeenth day, our cavalrymen were strung out all through the mountains. Each company was commanded by a hard-eyed officer with orders to shoot the first man who dared to start a fire.

I don't know how we did it, but we did. I doubt any pre-mechanized army of my own timeline could have successfully made such a march under similar conditions. Even here the operation would have been impossible if the weather hadn't been on our side. The Dalgiri manning the station were obviously technicians and garrison troops and apparently unenthusiastic when it came to mounting sorties in a cold, wet drizzle.

Being out in it constantly myself, I could see their point of view.

For three days we hid our army, our cannon, and our catapult in the forest

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while the cold wet soaked into us. We waited patiently for the word that the portal was open. Just before dark on the third day, our scouts galloped into camp with the news we had been waiting for: a shuttle had grounded at the Dalgiri base.

Our forces sprang into action with the skill of men born to these hills, taking up position just beyond the station's lighted perimeter, moving like a legion of ghosts in the pitch black night. And when we were in position, we each bundled up against the cold and damp, made peace with our various gods . . . and waited for dawn.

I glanced down at my chronometer for the last time, counting down the seconds to Zero Hour.

"Three . . . two . . . one, now!"

There was a loud *whip, crack, hiss* behind me as a dozen dark objects arched overhead on their way to the target. That was the steam catapult launching the few disruptors we had managed to construct from salvaged parts. I held my breath as I watched the small, black cubes land among the lighted domes.

The initial catapult load was a signal to the big field guns that lined the ridge. The pale grey of the scene was split by a long echo of rolling thunder followed by the whistling screech of chain shot.

A thousand screaming men rose from hiding and charged into the smoke and haze of the valley floor, firing as they went. Very soon it became impossible to see anything of the action except for the flash of musketry and an occasional bolt of lightning from the beamers guarding the perimeter. Behind us the catapult let fly again, this time tossing a barrel-sized warhead that exploded at the top of its arc. The battle was suddenly pelted with a shower of metal foil. The chaff was insulation robbed from *Concorde* that had been torn into long strips by the ladies of Fyalsorn. It would confound the Dalgiri sensors controlling the perimeter weapons.

I climbed to my feet, stretching my legs to get the kinks out, as Dal clambered up the hill from where he had been directing the catapult fire. Like me, he was dressed in full Fyalsornan armor and held an oversized musket in his hands.

"Good shooting," I said. "All the packets came within the perimeter."

"Let's hope they were close enough to that shuttle to do some good. Shall we join the fight?"

It wasn't exactly how I had pictured my first entry into battle. We strolled calmly down the far side of the hill and into the carnage below.

I suddenly found myself very busy trying to stay alive. I ran through the smoke and haze towards the sound of firing. Once a soundless bolt of lightning flashed overhead so close that I could feel the heat and smell the ozone. I crouched lower and ran faster.

I quickly found myself near the grounded shuttle. Someone was firing a beamer through the open hatchway, pinning down thirty of our riflemen, who in turn were firing into the shuttle interior trying to ricochet a ball into the defender. I hesitantly glanced around the corner of a low wall and saw the reason the Dalgiri hadn't buttoned the shuttle up.

There were three bodies half in/half out of the hatchway. One was that of a Dalgir, obviously shot while trying to

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dislodge the two Fyalsornans that had jammed the hatch originally. I glanced around to ask Dal for his advice and discovered he wasn't there. I gulped back my fear at being suddenly alone and turned back to the scene of battle.

A bluish glow caught my eye.

Lying just below the open hatchway, beneath the rising curve of the shuttle hull, was a Dalgiri beamer. I recognized it by the steady flood of Cherenkov radiation that emanated from its glass barrel. I whispered quick instructions to the man nearest me, and backed hurriedly away from the low wall.

My plan was simple. If I could get to the aft end of the shuttle without being seen, I would stand a good chance of making it to the beamer. What I would do with it once I got it, I wasn't sure. If nothing else, I should be able to keep that lone marksman's head down.

I made it to the shuttle without incident and lay on my belly beneath the curve of the hull. Progress was slow. I moved forward a few feet in a slow crawl, then stopped to rest for a second while I regained my will to go on. The Fyalsornans stepped up their covering fire as I scrambled the last few yards.

Suddenly I had the beamer in my hand. It was warm to the touch as I checked it for charge. The last owner must not have had much of a chance to use it. The charge was maximum.

Steeling myself, I nodded to my friends, who opened up with everything they had. My hope was that the Dalgir inside would duck out of the line of fire long enough for me to hose the inner chamber with some beamer bolts of my own.

Then it was done and the warriors were running toward me, screaming at the top of their lungs. They didn't wait for the hatch chamber to cool off, but plunged recklessly into the heat shimmer, their cries of triumph echoing through the shuttle's passageways.

I waited for a few seconds to get my heart out of my throat and followed.

20

I left six men inside the Dalgiri ship, showing them how to close the hatch once we had cleared the bodies out of the way, warning them not to come out until ordered to do so. Then I gathered up my troops—now more than fifty—and went looking for other enemies to conquer.

By this time, there weren't many. As we searched each dome, it became clear that the Dalgiri manning this base numbered fewer than a hundred and that we had taken them completely by surprise. Most had died in clothing hastily pulled on and carelessly secured. Many had been cut down as they tried to man bunkers throughout the complex. The few who succeeded in making it to their posts had been dug out by small parties of musketmen acting on their own initiative.

And finally, when the number of Dalgiri survivers was less than a dozen and troops began to call for their surrender—as Dal and I had taught them to do in the Dalgir tongue—a number of beamer blasts flashed in the defenders' positions. When a few brave men went in to investigate, they found the enemy dead at their own hands.

The war between Dalgir and Talador yielded few prisoners.

As soon as we were reasonably sure

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the Dalgiri resistance had been broken, I took a small party and began searching the domes for Haret. My helpers took a perverse pride in their work. There had been relatively little swordplay during the battle because few Fyalsornans had gotten close enough to the Dalgiri to wield their favorite weapon. Their disgruntlement was quickly dispelled when I set them to chopping through interior partitions.

It had been almost forty minutes since I had heard the last musket discharge when Saurzon, the burly eight-foot giant helping me, smashed a door in and an excited female voice called out from the bare cell inside.

"Haret!" I screamed as I lunged past Saurzon and swept her into my arms.

"Oof, careful of my ribs."

"Sorry," I said. "Are you all right?"

She gave a little shudder of horror inside the shapeless 'hospital gown' the Dalgiri had given her. "I am now."

"Let's find something suitable for you to wear and find Dal and Ryfik."

Fyalsornan attire was out of the question—hopelessly oversized for Haret's diminutive-for-this-timeline figure. We found some Dalgiri outer wear in a closet and she slipped into that. Saurzon gave her his coat to cover the Dalgiri uniform, lest she be shot by mistake in the confusion outside.

We found Ryfik and Dal at the shuttle. Dal had just finished an inspection of the interior and stood outside with a puzzled look on his face. Then he saw Haret and went wild with joy.

I waited a minute before clearing my throat loudly enough to get Dal's attention. "What's the matter with the shuttle? It's operational, isn't it?"

He released Haret and turned to face me. "From what I've seen, yes. But it's not of any standard Dalgiri shuttle class that I've ever heard of. The engine room is barely recognizable. According to the ship's log, it is one of two shuttles based at this station. Care to guess where the other went?"

"The shuttle that attacked the Academy!" Haret exclaimed. "Then this shuttle is designed to make the jump between universes without going through a portal. We've succeeded in our mission!"

"I hope so," Dal said, "but there is much that needs to be explained. Why did the crew wait for the local portal to open before returning to base? Why the special engines? And what is all the special equipment we found used for?"

"Special equipment?" I asked.

Dal nodded. "They're bringing some of it out now."

Two warriors appeared in the hatchway, each carrying an example of the mysterious 'special equipment' in his arms.

"What are they?" Haret asked, a look of puzzlement on her face. "A suit for deep sea diving perhaps?"

Dal 'shrugged.' "A more likely use would be to protect the wearer while working with poison gasses or biologicals. But what would that have to do with crosstime travel?"

I gazed wide-eyed at the two Fyalsornans with their prizes, and back at Dal and Haret, each looking more puzzled by the second. It was too much for me. I collapsed in a fit of laughter, sinking to the wet ground and holding my stomach as I rolled around in a fit of mirth. I looked up to discover Haret

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leaning over me with concern in her eyes and broke up even more. After a minute or two I had stopped chuckling long enough to climb to my feet and wipe tears from my streaming eyes.

"Are you all right, Duncan?" Dal asked.

I nodded, staring at the fluorescent orange and green constructs each warrior held before him. I had recognized the objects instantly. They weren't exactly NASA issue, but the 'special equipment' the two Fyalsornan warriors cradled in their arms were obviously a couple of spacesuits.

21

The sun was setting behind the mountains, painting a glorious golden backdrop that splashed amber flame across the roofs of the still deserted Time Watch Academy. After months of monotonous grey on the Fyalsornian timeline, seeing a real sunset again was like being reborn.

I turned from the wall of glass and nervously paced my well-worn path in front of the window. The two Taladoran troopers flanking the only exit watched my pacing with impassive eyes. I hardly even noticed them anymore.

My attention was focused instead on a second door, behind which the Emergency Planning Council of the Confederation had been in session for nearly eight hours. For that whole time I had been confined to this one room with nothing to do but stare into the Salfa Prime wilderness and space.

The waiting hadn't been so bad while Haret was locked in my plush prison with me. But Haret had been summoned through that door some three hours ago and had yet to emerge. I hadn't seen Dal Corst at all. Presumably, he had been in the Council meeting from the very beginning.

Suddenly the waiting was over as the door opened and a dark-skinned man in the uniform of a Commander of the Time Watch entered the anteroom. "We are ready for you now, Watchman."

I sighed. "I guess I'm ready too."

"Follow me, please."

The Council was in the conference room in which Dal had originally briefed us on the Fyalsorn mission. Both Dal and Haret sat poker-faced against one wall, neither daring to look at me, while I was directed to the end of the long table at which a dozen worthies sat. As I looked at the double row of expectant faces, I was surprised to discover that I recognized some of them. They were the most powerful men and women in the Confederation.

"Please be seated, Watchman," the silver-haired man I recognized as Tasloss, the Council Speaker, said from the opposite end of the table.

"Thank you, sir."

"Your compatriots have briefed us on what took place during your mission, Watchman. We will want a full report from you later. At the moment, however, this Council is more interested in how you came to the conclusion that the special suits found in the mystery shuttle were for use in vacuum."

I shrugged. "They were spacesuits. They couldn't have been anything else. I've seen enough pictures to recognize a spacesuit when I see one."

A yellow-skinned man with auburn hair leaned forward halfway down the table on the left side. "Then you were

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familiar with the possibilities of travel beyond the atmosphere prior to joining the Watch?"

I frowned. "Surely, sir, Dal has explained my . . . uh, origins."

"He has, but we would prefer to hear the story from you. If you don't mind, Watchman."

"Yes, sir. Well as you know, I come from a timeline which has yet to discover crosstime travel. Since paratime is closed to us, we have naturally turned outward toward space. We've landed men on the moon and inhabited rudimentary space stations for a few months at a time. So, you might say that I'm familiar with the possibilities.

"On this mission I learned some things about paratime structure I hadn't known. For instance, that portal formation depends in part on the local curvature of space in each universe. I had even wondered about the possibility of transitioning between two congruent points in the same universe.

"When I saw those spacesuits something clicked in my head."

"Do you have these flashes of intuition often, Watchman?" That from a hatchet-faced woman sitting on my right. I recognized her garb as that of an Hereditary Priestess of Muliphoor, whose order was reputed to be one of the sharpest collection of minds in all paratime.

"No, ma'am. This was my first. I suddenly realized that the Earth isn't the only mass in space that can promote portal formation. If the Dalgiri need spacesuits, it's because they are operating beyond the atmosphere. And the moon is the closest planetary-sized mass in this vicinity. Once your mind makes that jump, Councilor, it is a straight shot to the fact that there are portals on the moon.

"From what I'd learned about temporal physics, that made more sense than the theory that they had found a method of jumping the barrier between universes. Everyone agrees that that is theoretically impossible."

Tasloss shot me a look from the other end of the table. It was either a flicker of a smile, or a beam of triumph. I couldn't be sure because he immediately suppressed it as he began to speak. "So you concluded that the Dalgiri had developed teleportation as a means of getting to the moon?"

"No sir, not at first. I thought they were using their lift-and-drive engines and doing it the same hard way my people did. It was only after nearly a Tenday of study that we identified the intratimeline transition generators, and traced the circuits to the automated guidance computer. After that, it was just a matter of experimenting with the controls. We crossed our fingers, pushed the button, and found ourselves hovering over a lunar plain at one-sixth gravity. We couldn't stay long as the battle had damaged the shuttle's airtightness. Our ears began to pop as we lost internal pressure through the breaks in the hatch seals. Dal pushed the button again, and we found ourselves back on Salfa Prime on the opposite side of the world from the Academy. We flew all night, set down at the shuttle port, and called for assistance.

"And here we are."

"Hah!" The exclamation was an explosion of sound from a portly gentleman sitting on Tasloss's immediate

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right. He had taken no apparent interest in the conference up to this moment. There was no mistaking the look of triumph on his face now, however. He rose and glared at the others.

"What have I been telling you for nearly two years, my esteemed colleagues? This young man's timeline is something special. They are expanding into a field of knowledge of which we know virtually nothing. I say the caution of some of you around this table is laudable, but misplaced. We must act now, tonight, before the thousand-times-damned Dalgiri steal another march on us."

"I beg your pardon, Councilor?" I asked with a sinking feeling in the pit of my stomach. "What are you talking about?"

The fat man rose ponderously to his feet. "That we take a vote this very *bora* on admitting the timeline dubbed Europo-American into fellowship of our glorious Confederation. Should the Council see fit to vote with me, the contact fleet will be on its way to your home within a Tenday."

I nodded, and got wearily to my feet. I had half expected something like this to happen. I took a deep breath, knowing the rest of my life would be changed by the next few moments.

"Over my dead body!"

I stood like a rock while pandemonium broke around me.

22

Tasloss pounded the table with the stylized mace that was the Taladoran's version of a gavel, seeking in vain to restore order. Half the Councilors shook their fists at me—or used less recognizable gestures to show their displeasure—while the other half seemed to be sitting back, observing their colleagues with shrewd eyes. Among this last group were several who had been content to listen throughout the entire meeting. I tentatively decided that they represented the opposition to the annexation. I could see Haret and Dal out of the corner of my eye. Haret sat frozen in her chair, staring at me with horror, while Dal rushed toward me in determined strides.

"What the hell are you doing, MacElroy?" He whispered harshly in New York tinged English.

"What I think is right," I answered stiffly.

He seemed to think about it for a second, and then nodded. "I think I know what's bothering you and you may be right in this."

Finally, order was restored around the long conference table and everyone retook their seats. When Tasloss spoke, it was with obvious effort to restrain himself.

"Would you care to explain your comments, Watchman? I would think you would be pleased at the prospect of your fellow timeliners obtaining the benefits of Taladoran civilization centuries earlier than planned."

"I'm not sure I can, sir—explain that is—but I'll try. I guess my main objection is the fact that it is *Taladoran* civilization, not Europo-American. You are so far in advance of us in most ways, that we would be overwhelmed.

"I was with Lord Ryfik when he discovered Fyalsorn Castle destroyed. His reaction was very enlightening. Oh, he cursed the Dalgiri for the low lifes that they are. But he also cursed Talador

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with equal vehemence. As far as Ryfik is concerned, you and the near men are from the same mold. He isn't interested in your petty quarrels with each other. He just wants to be left alone. And you know something? I know precisely how he feels."

Tasloss looked at me solemnly down the length of the table. "I think you exaggerate, Watchman."

"Do I? What about my own case? I helped you people against your enemies. What thanks did I get? I was given the choice of getting part of my brain burned out or of joining your paratime operatives. A hell of a way to say thanks if you ask me. Do you want to know why I chose the Time Watch? Because I was told that the Dalgiri would be flooding through my timeline in another couple of decades and I hoped I might stem the tide somewhat if I joined the Watch."

"You made the right decision," someone growled under his breath.

. "Did I? If I had stumbled into the Dalgiri first, what would have stopped me from joining them? Indeed, what difference would it have made? It seems that our twenty years of grace is going to be cut down to a little more than a week no matter what I do.

"Those, ladies and gentlemen, are the facts from my point of view. As has been pointed out to me several times recently, we have something unique. We are spreading out into space, pushing back a frontier which you never realized existed. You would abort that effort, turning all of our energy into your war with the Dalgiri, making us carbon copies of yourselves. In short, you would smother us and make us another barely civilized line among thousands."

I paused for breath, noting the shocked look on their faces. It was almost as if I'd wished the *Mayflower* had never sailed in front of a national convention of the D.A.R. I didn't let them recover.

"What about Talador's reasons for not annexing Europo-American?

"You people have suddenly discovered that Earth is not alone in supplying access to the vastness of paratime. The laws of temporal physics extend throughout the universe. We know there are portals on the moon. What about the rest of the planets? Don't they also curve space? Think of Mars . . . or Venus . . . or giant Jupiter. How many cross-connections between timelines are there to be found in that vast maelstrom of poison clouds?

"And that's not all! Think of all those other stars in the sky. Can you be sure that somewhere out there, something bigger and meaner than you are isn't lurking, even now readying itself for the attack?

"The possibilities are mind boggling. You talk so blithely of the endlessness of paratime. By God, people, you don't know what unending is until you've spent a cold winter's night staring into the eyepiece of a telescope and recognized what you were looking at. Alternate universes may be infinite in number, but space . . . that is the greater infinity!"

Dal smiled. There was excitement in his eyes. I think he was getting the message. Tasloss cleared his throat, suddenly uncomfortable. Maybe I was getting to him too.

"It would seem to me, Watchman,

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that you have just made the case for the immediate annexation of your timeline. You have just proven that we must control your people's expertise."

I shook my head. "You aren't thinking it through. Our space program is still in its infancy. We have barely made it to the moon and aren't planning to go back for another twenty or thirty years. What happens when you abort that effort by revealing to the folks back home that there is no need to go to the planets? You have been seduced by your thousands of lovely, exploitable Earths. What makes you think we are made of stronger stuff? Why would anyone risk his skin in a vacuum-packed sardine can when he has a temporal shuttle to ferry him between a limitless series of Earthly paradises?

"Abort space flight now, and it seems to me that you have one hell of a problem. You'll be stuck with an infant technology. It will never grow any more advanced. You will be able to guard the moon adequately on all your timelines, but the sun, the stars, and the planets will remain forever beyond you. Wouldn't it be better to hold off annexing Europo-American until we had developed space flight to the point where you can at least guard the solar system on your timelines? After all, nothing will prevent you from siphoning off our technology in secret. Consider it a controlled experiment in an alternate way of looking at the universe, if you will."

The Councilor who had originally proposed annexing Europo-American drummed his fingers on the table, and glared at me with betrayal in his eyes. "If it is inherently impossible for a crosstime traveling civilization to de-

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velop space travel, Watchman, how do you explain the Dalgiri having done so?''

''Simple,'' a familiar voice boomed out, ''they didn't!'' I was startled to discover that the voice was mine.

''Explain that comment.''

I licked dry lips, feeling many of the same emotions I had felt during the interview with Lord Ryfik. My mouth had gotten me into a tight spot, and now it was up to my mouth to get me out. I thought furiously as I stalled for time. Suddenly, I had the answer.

''The Dalgiri didn't discover space travel. They tripped over it in their travels crosstime the same as you did. I should have realized it before now. The teleportation controls in their shuttle were too simple. You push a button and find yourself on the moon. You push it again and you're in another timeline back on Earth. Even the Russians give their crews more control than that. There should have been some kind of manual backup in case the automatics failed. There weren't any because the Dalgiri don't truly understand the mechanics of teleportation. If they don't understand it, they certainly didn't invent it. Therefore, they must have stolen it somewhere.''

I paused for breath and found myself out of arguments.

Tasloss stared ponderously up and down the table before facing me. ''Thank you for your opinions, Watchman. Please wait in the next room while we make our decision.''

I got unsteadily to my feet and started for the door. I couldn't shake the feeling that I had blown it with my big mouth. One last look convinced me. From the looks on their faces, it was obvious that I had lost.

23

A rough hand shook me awake. I looked up with bleary eyes. The last thing I remembered was sitting down because my feet hurt. The Council session had still been going strong two hours after they had kicked me out, the argument sometimes reaching the point where they overpowered the conference room's soundproofing.

Dal was standing over me.

''Don't tell me I went to sleep,'' I groaned. ''My whole world is at stake and I can't even keep my eyes open.''

''That was one helluva performance you put on in there. You deserve the rest,'' Dal said in English.

''Well? Don't keep me in suspense. Do I go back to hitting the books at dear old Time Watch U. or do I pack my bags for Leavenworth?''

''Neither.''

''Huh?''

I scanned Dal's expression for a clue to my future. He refused to give me one. Then, after an agonizing ten seconds, he let his lips curl up in a slow smile.

''You did it! The annexation has been called off.''

I let out a yell that rattled the wall of glass next to me. I would have danced a jig if I hadn't been so tired.

''It wasn't an easy decision, mind you,'' he continued. ''They were about ready to kill each other for a while after you left. Luckily, everyone cooled down and reason more or less prevailed.

''The Council decided to take your suggestion and let Europo-American develop in its own way without inter-

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Jay Kay Klein's

BIOLOG

More than one science fiction writer started his career because he was sure he could turn out material better than a lot of stuff that managed to get printed. Enter Michael Allen McCollum. Three years later, he finally had a novelette, and the cover, in the April, 1979 Analog. Mike swears this was accepted between the time Ben Bova left and Stan Schmidt became editor, and that one way of breaking into print is to be around when no one is minding the store.

Actually, a year earlier in the March, 1978 issue, Mike had a science fact article on disposing of nuclear waste, an outgrowth of, first, his interest in nuclear power which amounts to a major avocation and, second, his professional background in rocketry. His B.A. in 1969 from Arizona State University was for a major in Aerospace Propulsion and a minor in Nuclear Engineering.

His first job was with Pratt and Whitney Aircraft at the Florida Research and Development Center, where he worked on a high pressure, hydrogen-oxygen rocket engine that became the model for the space shuttle main engine. Born and raised in Phoenix, he married a hometown girl and left Florida after three years to return to Arizona, now residing in Tempe. He is currently an assistant project engineer on pneumatic controls at the AiResearch Manufacturing Company of Arizona, a Division of the Garrett Corporation, which is one of the Signal Companies.

Mike originally became interested in the aerospace industry as a result of being a science fiction reader. At times he intensively pursued flying, scuba diving, and skydiving. Now he concentrates on his work and writing. For the latter he has recently put together a word processor. He expects to continue in the "hard science" tradition of Heinlein and Niven, with the type of stories in which Analog has always been preeminent. His story in this issue is a sequel to "Beer Run" that appeared in the July, 1979 issue, with a third in the series already underway to round out a novel.

Michael McCollum

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ference from us. Not that we are abandoning the timeline either, you understand. We're doubling our force of agents there. The plan is to saturate your high technology industries with crosstime spies. They will report back on every phase of your space program, allowing us to copy any developments that look promising. Spacesuit design is first on the list, by the way."

"Sounds good," I said.

"You don't mind a little surreptitious recruiting do you?"

"No I guess not."

"They agreed that Europo-American is a good source for new Watchmen. You've shown us that we have tended to become a bit inbred and in desperate need of new blood and ideas. Of course, we are going to bend all of our efforts towards keeping the Dalgiri off the line, too. Wouldn't be much of a controlled experiment if we allowed them to kick hell out of you people in a couple of decades, would it?"

"Most decidedly not."

Dal chuckled. "You should have seen old Tasloss toward the end in there. He has spent his life keeping the barbarians at bay and you have just opened up a whole new panorama of dangers he never realized was there. Now he has to start over, rebuilding his defense perimeter. It will be the work of millennia to calm the fears you raised in there today, MacElroy. I hope you're proud of yourself."

I grinned. "You know something, Dal? I really am. I don't even blame you for kicking me out of the Time Watch. I'd do the same in your place."

"Kicking you out?"

"Well, I naturally assumed that if I'm not returning to my studies here at the Academy, that I was out on my ear."

"What gave you that idea? You are coming with me. We are arranging an expedition to find this mysterious timeline that has supplied Dalgir with the teleportation trick. Who knows, if they are like the Dalgiri's usual client world, they may even join us."

"An expedition? Into Dalgiri time?"

Dal nodded. "Want to go?"

"Of course, I want to go! I promised Ryfik that I would do everything I could to protect him. This sounds like just the thing to keep them too busy to bother him again. There's just one thing . . ."

"What?"

"Are you leaving soon?"

"Maybe in a half a year. This isn't going to be a spur of the moment trip like the last one. This time we go prepared. Why?"

I grinned. "I thought I would invite Haret swimming in our favorite mountain pool tomorrow. We were interrupted at an inconvenient moment last time. I thought we could take up where we left off." ■

Once we grant that the universe did not just happen accidentally but is the product of a mind, and that purposefulness is evidenced in it, the argument for God seems to me to leap ahead.

DR. LESLIE WEATHERHEAD

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In a science fiction classic of the Golden Age—"Alas, All Thinking!" by Harry Bates, in *Astounding*, June 1935—the hero goes by time travel three million years into the future. He finds that mankind has dwindled to thirty-five supergeniuses whose skinny little bodies cannot hold up their huge heads without props, like the clamps that Victorian photographers used to keep their subjects from moving during a time exposure. All these futurians do is to sit and think. Horrifed, the hero massacres the lot, which does seem a little bigoted of him.

Other writers have caused human beings to develop into supermen or telepaths; or, after an atomic war, into freaks with three eyes or two heads. From all we know of mutations, nothing so picturesque is probable. Then what is likely to happen to man as an evolving organism? A look at our past may give some hints about our future.

Up to the Agricultural Revolution of ten or twelve thousand years ago, man developed much as other life forms do. We had evolved during the preceding ten or twenty million years from small, bipedal, ground-living man-apes like those found fossil in Africa. We have since never become perfectly adapted to walking upright, as witness hernias, varicose veins, and fallen arches.

During the last hundred thousand years or so our species, under the pressure of different environments, split into three main races: the black or Negroid, the white or Caucasoid, and the yellow or Mongoloid, together with a few small groups like the African bushmen and the Australian aborigines, which do not fit into any of the major

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races but are classified by anthropologists as separate minor races of their own.

The main racial differences are adaptations to different climates: the Negroid's dark skin, woolly hair, abundant sweat glands, and long-limbed shape to African heat and sun; the northern European's pale skin, full beard, and long, narrow nose to the cool, damp air and sunless skies of northern Europe; the Mongoloid's smooth, fat-padded face, coarse, straight hair, and stocky build to the bitter winters of Manchuria and Siberia. Different races also differ in their immunity to diseases, according to what they have been most exposed to. Thus Negroids resist malaria, on the average, better than Caucasoids; while in the case of tuberculosis it is the other way around.

For millions of years, our forebears lived in tiny, isolated bands of hunters and food gatherers. Three evolutionary forces molded them: mutation, selection, and genetic drift. Mutation, which I shall come back to, is, of course—as nearly all the present readers know—a sudden change in the mechanism of heredity.

Selection is the "survival of the fittest" of which Darwin's follower Herbert Spencer wrote. The fittest are simply those who have the qualities they need to leave more offspring than others of their kind. Fitness can take the form of being stronger, healthier, cleverer, brisker, more fertile, more aggressive, or better at cooperation with others, or any combination of these qualities.

Some human traits that do not fit well into civilized life may be explained on the ground that they helped in our survival as hunters. An example is the built-in factiousness and quarrelsomeness that leads any large group to divide into factions on almost any pretext—racial, religious, national, linguistic, cultural, or even sporting—and fight it out. This trait may reflect the need for a hunting-gathering band, when it gets too large, to split amoebawise, so that the weaker faction goes away to seek new hunting grounds.

While selection pushes the species as a whole towards a general rise in fitness, selection causes one species to split into two or more distinct, intersterile species only when combined with isolation. When all members of a species form a single interbreeding unit—that is, when no physical barriers restrain genes from traveling, by successive matings, from one end of the species' range to the other—this travel will mix the gene pools of different parts of the range so that all remain more or less uniform. Any local races that arise will never differ so widely from the rest of the species as to become unable to interbreed with them.

In our own species, the range was broken up by mountains, deserts, and oceans, which to hunter-gatherers were practically impassible. In some places, passages from one land to another, which had been open, were cut off by the rise of the sea level with the melting of the Pleistocene ice.

Furthermore, the bands were more or less isolated from one another as a matter of economic necessity. A band of a hundred hunter-gatherers (I call them theratics) needs a range of one to two hundred square kilometers to itself, if it is not to exhaust the local food

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sources. This isolation hindered the interchange of genes and fostered the divergent evolution of local races towards separate species. But in mankind, the process has never gone far enough to render interracial matings infertile, as it might have in another million years or so of theratic life. Now the overriding tendency in the species is towards greater and greater intermixture and homogenization.

All the human evolution that we know about took place before the rise of civilization. So far as we can tell from bones and art, the first men to till the ground, build cities, smelt metals, and write were not biologically different from us. Since they lived less than 12,000 years ago, we have not been civilized long enough for much evolution to have taken place in that time. Twelve thousand years is less than one percent of the time since the beginning of the Pleistocene, when our ancestors were lowbrows of the *Homo erectus* type.

Genetic drift is the random variation in small interbreeding populations away from the original type. It comes about partly through mutations and partly through the chance loss of types of genes regardless of their adaptive value. For example, if in a large population a certain percentage carry the genes that cause blue eyes, and blue eyes (we may assume) have no selective advantage or disadvantage, the percentage with that gene will remain about the same indefinitely. But if you have a group of twenty people, two of whom carry the blue-eye gene, and those two perish in an accident, then the blue-eye gene will be altogether eliminated from that group's gene pool. Some peculiar traits among small, long-isolated populations, like the high percentage of Rh-negative blood in Basques, may be the result of genetic drift.

I suppose that all my readers have some idea of the workings of heredity. You know that the hereditary mechanism is contained in the chromosomes, which are threadlike particles in each cell of the body (forty-six in each human cell) in nearly identical pairs; that each chromosome is a string of genes, the number running into tens of thousands; that each gene is a complex molecule, which governs, by itself or in combination with others, the growth of one or more parts of the body.

You also, I am sure, have a good idea of the meanings of the terms "dominant" and "recessive." The gene causing brown eyes dominates that causing blue eyes, which is recessive. This means that, when you mate a human being of pure blue-eyed ancestry with one of pure brown-eyed ancestry, all the offspring (with rare exceptions) will be brown-eyed. But, when these brown-eyed persons mate with others of similar ancestry, on the average one-quarter of their offspring will be blue-eyed and breed true; one-quarter will be brown-eyed and breed true; and the remaining two-quarters will be brown-eyed but will give mixed offspring in the same ratio of 1:2:1 as their parents did. (There is a great deal more to the story than this, but I am not trying to write a textbook on genetics.)

As for genetic drift, mankind has now become one vast interbreeding unit of about four billion. Travel and migration keep mixing genes from the ends of the

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Earth, so that genetic drift is no longer effective, save perhaps in small, self-isolated groups like religious cults. Likewise the loss of isolation on one hand and the development of artificial means of combating extremes of climate on the other—fire, clothes, houses, air conditioning, and vitamin pills—have cancelled any tendency of the different races to continue diverging until they become distinct species.

Racial pride and prejudice can slow the process of interracial mixing but are unlikely to stop it. They did not stop it in India, where over 3,000 years ago the barbarous Aryans set up a caste system with strong religious taboos against intermarriage between castes, to keep their descendants distinct from and dominant over the much darker but more civilized folk they had conquered. Hence today all East Indians, given the same amount of exposure to the sun, have fairly uniform complexions.

Does this mean that mankind will eventually reach one uniform racial type? Such a man would have about 60% Caucasoid ancestry, but half of these "white" ancestors would be "dark whites," like those of India and North Africa. He would be about 30% Mongoloid, and the remaining 10% Negroid. He would be a medium-sized, light-brown, black-haired fellow easily taken for a Mexican or a Polynesian.

It is hard, however, to imagine that enough Caucasoids or Negroids would ever migrate to Mongoloid China to affect seriously the racial makeup of the Chinese. So the main groups are likely to remain distinct, for the foreseeable future, where they now predominate over large areas, such as China, Europe, and sub-Saharan Africa. The main change is likely to be the disappearance by assimilation of little racial pockets and enclaves, such as the Pygmies of the Ituri Forest of Zaïre, the Caucasoid Ainu of northern Japan, or the Mongoloid Kalmuks of the lower Volga.

The big change in human evolution during the last ten thousand years has been the letting up of the pressure of selection, so that the species is no longer visibly improving. In the absence of selection, man has worked himself into an environmental niche like that of the lamp shell and the horseshoe crab, so well adapted to their environments that they have changed but little in many millions of years. Of course men did this more by changing their environment than by evolving themselves. If the species is going anywhere it is going downward, because millions now survive and breed despite hereditary weaknesses that would have killed them off in primitive life, and they pass these defects on to their descendants.

But are not millions better off because of improvements in diet, exercise, and medicine? Yes, civilization does have these effects, at least on a sizable minority of the species. But the effects are temporary, because they affect the phenotype, not the genotype.

A man's genotype is his basic hereditary plan, as set by his genes. His phenotype is what he has actually grown up to be, as the thousand natural shocks that flesh is heir to work him over to modify the original plan. One might compare the genotype to the blueprints for an automobile and the phenotype to the actual car, after it has been driven a while, with all the mistakes made in

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the factory, dented fenders, torn upholstery, and other damage.

It used to be thought that by affecting the phenotype you could modify the genotype, as in the story of Jacob and Laban in the 30th chapter of Genesis. Jacob had a deal with his father-in-law Laban, whereby, when they divided their flocks and herds, Jacob should get all the spotted ones. So crafty Jacob peeled spots on sticks of green wood and set the sticks up in watering troughs where the animals would see them when they came to drink. According to the Good Book, Jacob was thus enabled (by pre-natal influence and inheritance of acquired characteristics) to make away with most of Laban's best stock. Not surprisingly, this act caused hard feelings.

The last important believer in the inheritance of acquired characteristics was that eminent faker Trofim Denisovitch Lysenko. Stalin put Lysenko in charge of Soviet agronomy for fifteen years, with the result that the poor Russians ended up hungrier than ever.

Even the phenotypic effects of civilization are not all to the good. In prosperous lands, millions grow up bigger and healthier because they eat better, but an even larger number suffer from dental troubles caused by too many sweets and soft, rich foods, and obesity from a poor diet and lack of vigorous exercise. Millions become stronger from sports and exercise, but other millions grow up soft and under-muscled from riding automobiles instead of walking, and watching television instead of playing outdoors. While modern medicine saves millions, tobacco and automobile exhausts inflict lung cancer and emphysema on others.

While any organism is affected by its environment, the effect, with rare exceptions, is on the phenotype, not the genotype. The ordinary environmental factors—food, exercise, sunlight, injuries, and infections—have no effect on the genotypes of future generations.

The one feature of civilization that does have a selective evolutionary effect is the epidemic diseases that arise among civilized folk. The reason they arise is that an epidemic disease needs a certain density of population in order to spread. When people are as thinly scattered as they are in the hunting-gathering stage, the disease dies out. Consequently civilized people have greater immunity to such diseases than primitives.

You may have heard how the Amerinds of the Caribbean died out when the Spanish enslaved them. They died, not because they were too proud to live as slaves, but because the Spaniards brought smallpox and measles. From West Africa they also brought Negro slaves and the *Anopheles* and *Aëdes* mosquitos. Anopheles carries malaria, while Aëdes spreads yellow fever. The Indians returned these gifts by giving the Spaniards syphilis and gonorrhea, which also inflicted a devastating mortality when first introduced to Europe.

Selection still works against the most glaring defects, such as juvenile amaurotic idiocy, because the victims die before they can beget progeny. Some other selective influences might, if continued long enough, have an evolutionary effect. If gentlemen really preferred blondes and continued to do so for a few thousand years, this preference might cause a measurable rise in the

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incidence of blondeness. Celibate priesthoods tend to drain off the most intellectual people and so might in time lower average intelligence.

Polygamy might have the opposite effect by giving rich and successful men more than their due share of the women and thus enabling them to leave more offspring than other men, like some of those medieval sultans and amirs who could muster a whole company or battalion of their own sons.

Evidently none of these forces has been at work long enough to have visible evolutionary effects. Catholic countries like France and Italy, I can assure you from first-hand acquaintance, have not been reduced to drooling idiocy by celibate priesthoods; nor has polygamy yet made supermen of the Arabs or the African Negroids.

Among stone-age primitives, warfare used to have some selective effect by favoring the survival of the strong, alert, agile warrior. But when men began shooting things at one another, from arrows to nukes, survival became more and more a matter of luck. So now I cannot see how war has any particular selective effect.

This brings up the question of atomic war. First, the main effect would be simply to kill vast numbers—perhaps a substantial fraction of the world's population—and leave other multitudes crippled by radiation effects. On the other hand, all we know about these effects indicates that they would be the same as those from other radiation sources like X-rays. Secondly, they would merely speed up, a little, processes that go on all the time.

Hard radiations have effects of two kinds. One is the effect on the victim's body or phenotype, which range all the way from temporary loss of hair to death. The other effect is on heredity, by causing mutations, or sudden hereditary changes. These changes were called "sports" before scientists got around to studying them. The first mutation definitely recorded was a short-legged lamb, born in 1791 in a flock belonging to Seth Wright of Massachusetts.

The kind of mutation that occurs in animals is the gene or point mutation. Now and then an accident befalls a gene. Some atoms are knocked off, or twisted askew, or an extra atom is added, or the gene's position is changed, or the gene is duplicated or lost. If the cell is an ordinary body cell, such as one from your tongue or your eyeball, nothing happens. But if the cell is a gamete or sex cell, which becomes another individual, the new gene pattern is passed on to that offspring.

One gene in a gamete has little chance of mutating. But with tens of thousands of genes in each cell, mutation is not so rare. Some geneticists think the gamete has about one chance in four of mutating. Since you get one gamete from each parent, you have an almost even chance of being a mutant.

Then why don't we all have two heads? Because most mutations are so small that they can hardly be detected. In fact, there may be a vast number of mutations where the change in the gene has no effect on the resulting organism. When a mutation does have an effect, it may make your eyesight a little keener or dimmer, or your digestion work a little better or worse, or your arteries harden a little sooner or later.

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In point of fact, most mutations that have any effect are harmful or destructive. They make our eyes and digestions and arteries worse, not better. Constructive or beneficial mutations cannot be more than a small fraction of one percent of the total.

The bigger the mutation, the smaller its chance of being beneficial. Most drastic mutations are lethal, killing the organism in embryo. The reason is that a gene is an enormously complex little piece of biochemical machinery, delicately adjusted to its task of controlling the growth of some part of the body. To expect a big random change to improve it is like trying to improve your watch by hitting it with a hammer.

Any gene may mutate in many different ways, but some genes mutate more readily than others, and some undergo certain mutations over and over. Thus the mutation responsible for hemophilia occurs about once in 50,000 human births. The hemophilia that Queen Victoria passed on to her descendants in the Russian and Spanish royal families was probably such a mutation.

Although rare, constructive mutations also occur. That is how evolution takes place. In a wild state, organisms with destructive mutations tend to die young, while those with constructive mutations have more than their share of offspring and take the place of those without them. In Europe, the black mutation of several species of black-and-white speckled moth became beneficial around sooty cities like Essen and Manchester, because black moths are harder for hungry birds to see against sooty walls and tree trunks. So the black moths became the dominant form in those areas. Now that the British have cleaned up much of the air of their industrial cities, the black-and-white moths are making a comeback.

We know some of the causes of mutations. Hard radiations, like those from X-rays and atomic explosions, cause some; so does the slight but constant radioactivity from the air and the Earth. About thirty years ago I was prospecting for uranium by airplane in the Adirondack Mountains. Several times I thought I had made a strike; but when I hiked to the spot on foot, I learned that any large exposed mass of granite, such as a crag or a quarry, emits enough radiation to register on a Geiger counter.

As far as evolution is concerned, however, the slow action of this weak natural radioactivity, acting over millennia, causes far more mutations than would the violent bursts of radiation from atomic explosions over a short time. An atomic war would probably not last long, and civilization would suffer far more from the destruction of cities and the breakdown of institutions than from a rise in the mutation rate.

This brings up the question of the safety of nuclear power, which has been a subject of lively dispute even since the Three Mile Island accident. As far as I can see, the hazard of a meltdown is serious, and the people at the power station were incompetent. But in the worst possible case, the damage from such an accident is of the same order of magnitude as a lot of other hazards that we tolerate, and a lot less than some.

For example, people are killed every year in coal-mine accidents and oil-refinery explosions. We let airplanes fly

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over densely populated areas despite the fact that every few years a mid-air collision or a structural failure brings one of these machines down on the heads of those below. Tank cars full of dangerous chemicals, some potentially a. devastating as radioactive gases, are always running off the track and splitting open. And then there are the exhausts from steam and internal-combustion engines, and acid rain, and . . . .

All these sources of risk, including nuclear power, are mere flea-bites compared to the biggest accidental killer of all: the automobile. We regularly kill about 50,000 a year and injure millions, a greater rate of casualties than the Vietcong were ever able to inflict. And most fatal auto accidents could be prevented; I have seen it done.

The cure is simply a jail sentence for all moving violations. In Los Angeles, about 1925, a judge—I think his name was Robinson—had an infant daughter run over and killed. So he started giving jail sentences to all speeders. You would be amazed at how carefully and sedately the cars moved along Sunset Boulevard for a while.

Of course it did not last. The real estate interests, then politically dominant, and the Hearst papers brought pressure to bear and ended the experiment. Similar opposition would probably stop any such effort today. The episode merely confirms the fact that, while most people approve severe penalties for offenses that they do not mean to do, like murder, they do not want drastic punishment for offenses that they themselves expect to commit. Nearly all drivers like to cheat, if only a little, on posted speed limits.

Anyway, to make a great fuss over the dangers of nuclear power, while ignoring all the other hazards mentioned—some of them worthier of fear—is to act like my friend the late Eric Frank Russell. Eric brushed aside the massacres of Hitler and Stalin but could work up a terrific charge of indignation over some company that marketed a harmful medical drug. It shows a lack of a sense of proportion.

Besides radiations, some chemicals also raise the mutation rate. Among these are mustard gas, some peroxides, ethyl sulfate, formaldehyde (which comes from automobile exhausts), and caffein (which occurs in coffee and tea). So far as we can tell, though, these mutations are no different from those that have been affecting our lineage all along, clear back to the original protoplasmal primordial atomic globule. Moreover, many defects, like the Downe syndrome (called Mongolism until persons of Mongoloid race raised legitimate objections) and the cleft palate, are due, not to mutations, but to accidents during the formation of the embryo.

There is still a sinister side to mutations. Among wild animals and primitive men, destructives are always arising and being eliminated by selection. But often, harmful mutations are not easily gotten rid of, because most mutations are recessives. Both genes of a gene pair, one from each parent, must belong to the mutated form of the gene before the mutation affects the offspring. If the organism has only one of a pair of genes from a destructive mutant, the creature

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lives a normal life but can pass on the destructive gene. If the mutation becomes common, the number of those with one of the pair mutated, called heterozygotes, rises until they begin to mate with each other, whereupon a quarter of their offspring develop the harmful trait and die off. Thus the species reaches a balance between the rates of mutation and elimination.

A common mutation causes an organ or a function to be altogether lost. If the organ or function is not needed, the mutation occurs again and again, by simple chance, until the type without the trait becomes the dominant type. This process is called *rudimentation*; it explains eyeless fish and insects dwelling in caves, and why men and elephants have so little hair. It also explains why certain groups of the Negroid race cannot as adults digest milk; after infancy they lose the capacity to make the necessary enzymes.

Conversely, you can be reasonably sure that, when an organism displays a prominent feature, the trait has some use in enabling the species to survive. It used to be thought that the recurved tusks of the male mammoth and the high dorsal fin of the Paleozoic reptiles called pelycosaurs were useless ornaments, created by some ill-understood irregularity of growth. Now these organs are explained more logically: the mammoth's tusks were snow shovels to get at buried food, and the pelycosaur's fin was a heat-control organ.

When selection pressure relaxes, destructive mutations spread through the species unchecked. Every advance in medicine enables more people with defects to live and breed like everyone else. If we have poor vision, we wear eyeglasses; if we have flat feet, we wear arch supports; if we suffer from allergies, we take antihistamines.

It may be significant that male color blindness is only about 1% among Eskimos, Papuans, and Navahos, but over 7% among the long-civilized Chinese, Euopeans, and white Americans, with American Indians and African Negroes in between. Color blindness is less of a handicap to a civilized man than to a primitive hunter.

Well then, why worry, so long as we have eyeglasses, arch supports, and injections for allergies? If destructive mutations would stop at any point, perhaps we could manage indefinitely with modern medicine. But mutations keep right on and would continue even if there were no such thing as nuclear power. If to weak eyes, flat feet, and allergies we add diabetes, anemia, arteriosclerosis, hemophilia, schizophrenia, albinism, early cancer, and a few other destructives, we shall have a pretty wretched person despite future medicine. Our descendants would be no better off for having to work only one day a week if they had to spend all the rest of their time at the clinic having their hereditary, mutation-caused defects patched up. And if civilization broke down only a little, say from a disaster or the exhaustion of a natural resource, such a race of invalids might utterly perish.

Then what can be done about destructive mutation pressure? Ninety-odd years ago, Darwin's cousin Francis Galton started a movement he called "eugenics," to encourage the "fit" to breed and to stop the "unfit" from doing so.

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by persuasion, isolation, or sterilization. The early eugenists were on the right track but made such wildly inflated claims as to discredit their movement. Moreover many were people of strong racial, national, and class prejudices. If only, they said, breeding were limited to the better sort of people, like us, all crime, vice, and folly would soon be done away with and man made over into a superman.

Now we know that the problem is not so simple. Suppose a man has what looks like a fault. Perhaps it is not really a defect from the point of view of survival, but merely some trait of looks, speech, or habit that we dislike. Even if it is a serious defect, it may or may not be hereditary. Even if it is hereditary, it may not be easy to eliminate. Since most mutations are recessives, if all those manifesting the trait were stopped from breeding, the character would still exist invisibly among a much larger number of heterozygotes. These would produce a new crop of defectives in the next generation.

Simple calculations show that the fewer people that have a recessive gene, the longer it takes to reduce it still further by stopping the homozygotes who show it from breeding. And here we come to the greatest obstacle to eugenic programs: the time scale.

We live in a period when the world is on an equality kick. Many well-meaning people insist that all men are literally equal, and if they are not, it is unfair and undemocratic and we should pretend that they are. Any disagreement with this view is élitism, and you know what a wicked thing that is said to be. Egalitarianism has been carried to the point where, a few years ago, the Kansas Department of Parks and Recreation put on a painting contest for young people. The prize was won by a finger painting by one D. Jim Orang, who turned out to be an orangutan in the Topeka zoo. One need not be an anthropocentric bigot to see that this is carrying equality a bit far.

Such egalitarians decried the idea of eugenics right from the start. It now seems that they were partly right, but for the wrong reason. The trouble with a eugenic program for human beings is the length of the human generation, much longer than those of most animals—for instance, about a thousand times that of the geneticists' favorite experimental animal, the vinegar fly *drosophila*. (If you have never seen a *drosophila*, leave the lid of your garbage pail ajar for a couple of days when it contains the remains of fruit, and the vinegar flies will appear in swarms.)

I once calculated how long it would take to reduce the percentage of albinism in the population by preventing all albinos from breeding. It would take 1,450 years to cut the present percentage in half, and 5,000 years more to reduce it by half again, or to a quarter of its present frequency. And no government in history has ever lasted so long, let alone followed a consistent policy for such a time.

That is the weakness of the sperm-bank for geniuses recently established in California. I do not see that it will do any harm, and if it could be kept going for a few thousand years it might show significant results. But who is going to keep it going for several thousand years? Man has been civilized only

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for five thousand years.

Moreover, we must remember that, as a result of the chance reshuffling of genes with each generation, the offspring of a pair of geniuses will on the average be more intelligent than average but less so than their parents. Likewise the offspring of a pair of morons will on the average be more intelligent than their parents but less so than the average of the species. The offspring of parents at the extremes of the curve measuring any variable quality tend to "breed back" towards the average. At the same time, the offspring of average persons now and then turn out to be geniuses or morons, so that the overall percentages of these various types in the species remain the same.

Furthermore, a defect like albinism and the rest could not be wholly eliminated, because new mutations would continue to give rise to it. The best we could do would be to keep the percentage down to the frequency it would have in a wild or primitive population.

But couldn't we quickly reduce such common defects as poor eyesight? Look at all the people who have to wear glasses. The trouble here is that "poor eyesight" is not a single genetic fault but the sum of at least a hundred different defects. Each by itself is fairly rare and so would need hundreds of years to reduce even by half.

So eugenics would never make us into supermen in a reasonable time. We shall probably never get so godlike a race as some of my fellow writers have imagined, because we can only encourage gene combinations that actually occur. In theory, perhaps we shall some day be able, by using recombinant DNA or something, to tailor human chromosomes so as to eliminate genes with destructive mutations. This, if it ever happens, is probably a long way down the road; but I have been wrong before by being too conservative in trying to guess when some future advance would materialize.

Critics of eugenics used to say that we could never agree on a plan for our superman. Should he have the head of Apollo, the body of Hercules, or the brain of Einstein? Now we know that beneficial mutations are so rare that there is no competition among them. Any real improvement in health, strength, intelligence, longevity, or disposition would be welcome. In practice, eugenics is more like running as fast as we can to stay in the same place.

Others say that we should instead practice euthenics—improving the conditions of life for the masses. But there is no conflict between these aims. Once people get plenty to eat and as much education as they are able or willing to absorb, they are unlikely to advance further with their present genetic equipment. Millions are in this happy position today—a vastly greater number, both relatively and absolutely, than was the case a few centuries ago—but that fact does not stop them from acting in foolish, irrational, self-destructive ways. You need only read the newspapers to see that. Anyone who thinks such advances in the level of human conduct can be brought about by some magical change in educational methods, political organization, or economic system is kidding himself.

Destructive mutation pressure, however, continues, and the only way now

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known to cope with it is eugenics. The prospects of eugenics are not quite so dim as might appear. Sometimes a recessive gene can be detected by small, telltale effects. In such a case it could be eliminated much sooner than if we knew about it only in homozygous form. But such a program would need stabler governments than now exist, to continue the program long enough to do any good.

Finally, both selection and mutation pressure work very slowly. While we shall eventually have to face the problem of destructive mutation pressure, a delay of a century or two will not be fatal and will allow the discovery of enough additional knowledge to do the job right.

In the meantime, the problem of, not the quality, but the *quantity* of human beings will be much more urgent. Some years ago I calculated that at the then rate of increase in the world's population, in about 1,400 years there would be one human being for every two square feet of the Earth's land surface. Since the average person takes up that much space when standing, that is literally standing room only. Something obviously will have to give long before that point, and what is likely to give is mass starvation on a scale we cannot even imagine. We had an ominous example a few years ago in the Sahel famine in Africa.

Those who talk of relieving population pressure by shipping people off to other planets or space stations are dreaming. Such a project is about as realistic as trying to beat a rhinoceros to death with a fly swatter. It is possible, at great expense, to maintain small groups of scientific specialists on the moon, or on Mars, or in a space station. Such people will discover (and have already discovered) many interesting things about the evolution of the universe.

The conditions of life in such places, however, would be much more exacting than life in Antarctica, where such colonies are maintained by leading powers now. But we don't see any massive migration from overpopulated lands to Antarctica. The annual increase in the population of Asia alone (figures are uncertain) has been estimated at 14,000,000; and where on the Earth or off it could you put so many, not just once but year after year? Anti-abortionists may take note. They generally avoid the subject, as if it would go away if ignored long enough.

So about man's biological future, we can be sure that it will be crowded. It looks as if, for the near future, the numbers are increasing rapidly, while the quality is slowly declining. Let us hope that both trends can be halted and perhaps even reversed while there is still time to do so. ■

CORRECTION

"The Struldbrugg Solution" was written by Susan Shwartz, not Schwartz, as was misspelled in our September issue.

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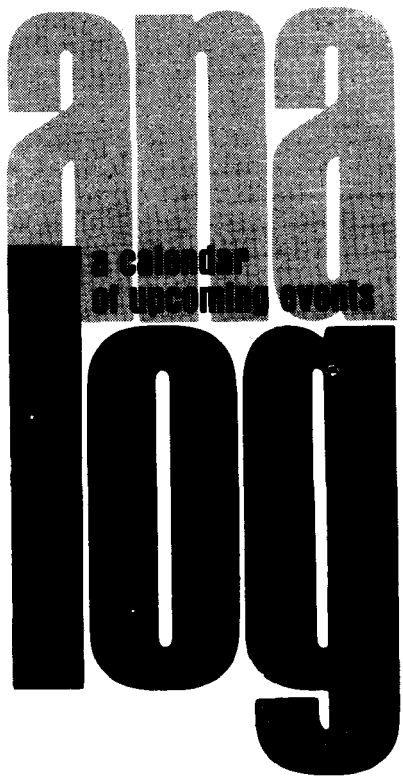

31 October-2 November
6th WORLD FANTASY CONVENTION at Marriott-Hunt Valley Inn, Baltimore, Md. Guest of Honor—Jack Vance. Artist Guest of Honor—Boris Vallejo. MC—Robert Bloch. Registration $25 (Limit 750) attending, $7 supporting. Theme: Edgar Allen Poe. Info: Chuck Miller, 239 N. 4th St., Columbia PA 17512.

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31 October-2 November
SUPERCON 2 (Houston area conference) at Dunfey's Royal Coach, Houston, Texas. Horror films, hucksters, costume contest. Info: Supercon 2, 1323 Whitte #204, Houston TX 77055.

14-16 November
ORYCON 80 (Oregon area SF conference) at the Hilton Hotel, Portland, Ore. Guest of Honor—Fritz Leiber, TM—F.M. Busby. Registration $10 attending (children 8 or under $5). Make all instruments payable to Oregon Science Fiction Conventions, Inc. Info: Orycon, P.O. Box 14727, Portland OR 97214.

14-16 November
PHILCON 80 (Philadelphia area SF conference) at Downtown Sheraton, Philadelphia, Pa. Guest of Honor—Ben Bova, Artist Guest of Honor—Kelly Freas, Editor Guest of Honor—Robert Sheckley. Registration—$6. Info: Joann Lawler, 2750 Narcissa Road, Plymouth Meeting PA 19462.

16-21 November
Winter Meeting of the American Nuclear Society at Washington, D.C. Info: D. G. Pettengill, ANS, 555 N. Kensington Ave, La Grange Park IL 60525.

28-30 November
LOSCON 7 (Los Angeles Area SF conference) at Sheraton-Anaheim Hotel, Anaheim, Cal. Guest of Honor—Larry Niven. Registration—$12. Info: LASFS, 11513 Burbank Blvd., North Hollywood CA 91601.

2-7 September 1981
DENVENTION II (39th World Science Fiction Convention) at Denver Hilton, Denver, Colorado. Guests of Honor—C. L. Moore and Clifford Simak, Fan Guest of Honor—Rusty Hevelin, Toastmaster—Edward Bryant. Registration—$25 until 1 September 1980 This is the SF universe's annual get-together. Professionals and readers from all over the world will be in attendance. Talks, panels, films, fancy dress competition, the works. Join now and get to nominate and for the Hugo awards and the John W. Campbell Award for Best New Writer. Info: Denvention II, P.O. Box 11545, Denver CO 80211. 303-433-9774.

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by Anthony Lewis

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MEETING OF MINDS

Ted Reynolds

During descent orbit, I found myself comparing the sight of Heiwa with that of old Earth. I stomped the thought out quickly. That wasn't me remembering. It was Barbara Simmon, and she'd been dead the better part of a century.

Still, as we (no, I, *I*) screeched down through the atmosphere, the gaudy slapstick landscape did summon up all the standard images of that distant seedrock. Not that I had much mood for surface-gazing. The alien blackship and its maggot crew couldn't be far behind me.

I pretty near had to sit on my hands to keep them from overriding the automatic descent program. The computed descent was probably the fastest way down alive, but it sure seemed to take forever to reach the ground.

I landed in a clearing some kilometers from the newly completed dome of the second Heiwan colony, and was out almost before the clods of dirt sliced up by our landing had ceased to pelt down. Without a word of farewell to the one-man ship which had brought me two abysmally lonely months from Tairé, I loped towards the scarlet arc of dome visible through the local greenery. I was met on the far side of the clearing by the presumable apex of colonial officialdom, in faded dungarees and woven sunshade hat.

"Tim Hume?" he assumed correctly. He was out of breath and sweating even more than I was. Well, he was more ponderous. "Caldoza," he identified briefly, tapping his own chest. "Hurry up."

Being haunted by your past can be distressing—but being haunted by somebody else's can be even worse.

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Meeting of Minds

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We jogged up a footpath through the familiar mix of Earth/Tairé/Vyborg trees and shrubs towards the red metal sheath ahead.

"The alien ship, how far behind?" Caldoza wheezed.

"Can't be more than a few hours," I said. "That's *if* they were at their top speed when we passed them coming in."

Caldoza glanced at me over his shoulder. " 'We'? I thought you came alone, Hume."

"I did. You must have misheard me. I said '*I* passed them'."

"Sorry," he said.

Both sides of the path were now lined with simple wooden crosses, crescents, stars; the grave markers of the first colony. Birth dates, scattered across half a century, death dates—all the same day.

"Apologize for this . . . haste," gasped Caldoza, as we pounded through the dome entry, armed guards zipping it closed behind us. Heavy gunnery nosed out peek-ports on either side. "Expected you'd have at least a day to rest up from your trip. But under the circumstances . . . here, . . . in here . . . just hope you can come up with something in time." We plunged into the shingle shack and collapsed onto packing crates in lieu of chairs. He wiped his reddened face, and leaned towards me over the plank which served as a desk. "What do you think, Hume? Can you get us something we can use in the next couple of hours?"

"How the hell should I know?" I complained. "Whoever had to perform a regression under such . . . such stinking unprepared conditions before?"

He nodded. "I sympathize, believe me. But . . . I guess you're as committed as anyone here, now it's come down to it. I don't have to point that out."

I wished he hadn't. I'd been trying not to think about it. I had come to unlock the only unread clue to a defense against the particularly unpleasant aliens who had brutally wiped out the first Heiwan colony, five years before, should they hypothetically strike again, here or elsewhere. That I had arrived just in time to share the same fate with the second colony if I didn't work fast seemed reverse serendipity with a vengeance.

"So where are the kids now?" I asked.

"The boy? He's asleep, already under preparatory sedation. The girl's beyond working with," said Caldoza.

I raised my eyebrows.

Caldoza looked understandably ill at ease. "Dr. Bergoff tried to regress her three days ago," he explained shortly. "It didn't work."

"Oh," I commented, and then, tightly, "Just how badly didn't it work?" My hopes had been on the older child, the four-year-old girl.

"Very badly," said Caldoza. "Complete catatonia."

"*Goddamn* you idiots," leaping up, slamming my fist on the desk, as Caldoza cowered from me. "Don't you ever . . .". It wasn't me, it was Michael Haskins, and

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I shut him off fast. I didn't need his righteous indignation now . . . or, I added to myself, ever.

I settled back on my crate.

"Sorry," I said. "It's been a dreary trip, but that wasn't fair of me. I assume you had reasons for pushing it without expert help?"

"Sure we did. The intrasystem packetboat spotted the blackship cruising the outer planets last week. For all we knew, it might attack before you arrived. We didn't feel we could wait. After all, we're still defenseless against a weapon we don't understand."

I nodded, distractedly. "You do realize, even if I can make an immediate breakthrough, there still may be nothing in the boy's memories that can help us understand what killed them."

"Of course," agreed Caldoza. "And even if we were to fully understand it, at this late date, we might well find ourselves without the whatever-it-might-be that could defend against it." His thick lips twisted wryly. "I keep thinking of a scenario where we find out that we're all safe if we take four ounces of castor oil each. Or something like that. But . . ." he shrugged broad shoulders phlegmatically, "what else can we do but try—and pray?"

I shrugged in my turn. I sat for a moment, linking my fingers together, first right thumb on top, which felt right, then left on top, which felt oddly askew. "Nothing," I said at last. "That's what I'm here for," then made a fist.

The first supply ship to ground on Heiwa after the massacre had found eighty-three slaughtered colonists of all ages, and three alien corpses. The first category had died almost instantaneously from massive cerebral hemorrhaging; the latter had been ripped apart by small-arms fire.

The aliens had resembled nothing so much as hundred-kilo versions of the maggots that already swarmed in the remains of both themselves and the humans. Disgusting buggers. Even the autopsy reports gave me nightmares. If intelligence of the human variety is to be measured by the ability to turn up on planets far from one's origins, and the ability to destroy other life forms effectively, these aliens appeared to be the first species of human-like intelligence yet encountered.

And that was all we knew.

There was one possible source of additional information, but we had been waiting for it to become available. Every colonist on Heiwa had been murdered; but perhaps their memories lingered on. A girl baby had been born the year after the massacre among the gutsy colonists who were already rebuilding on the graveyard of the first; a boy the year after that; by now there were half a dozen babies.

Regression had recently been demonstrated with adequate scientific rigor on Tairé. The girl, at least, must have been conceived

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within a few weeks of the massacre; she should have picked up *some* colonist's memories, psyche, life force, whatever you want to call it. The later children—maybe; we had no idea yet if the memories of the dead faded out, wandered off, or hung around forever. Besides, the girl would learn to communicate a year earlier. She was by far our best hope.

But then, starting four months before, came sightings of alien light-swallowing black vessels, in scattered human systems all along this leg of the Arm. Panic grew; each colony feared to be the next victim. We couldn't wait any longer to regress the girl.

And now that best hope was blown, and I had to work with a three year old who could barely babble. To say nothing of carrying through in a couple of hours a regression that usually took weeks to perform effectively. My chances weren't good. As for the kid's chances of a viable mental future, I hated to think.

"Didn't you get any information at all from the four-year-old before she . . . phased out?" I asked Caldoza.

"A bit, but nothing useful," he said. "We can correlate with the records of the first colony and identify the memories she's keyed into. She was a Tech. Second Class George Terrace, twenty-three years old. He was in the communications shack at the time of the attack, never saw an alien, wasn't near the fighting. His memories up to the time of death pretty much verify the voice tape they found five years ago. Here . . . ." He fiddled with a recorder on the desk, and keyed it on. The room filled with a voice, that of a terrified child, sounding a dead man's last thought.

" . . . says an unidentified number of creatures were left in the clearing by the alien shuttle before it lifted. Hsimen tells me to keep monitoring the orbiting blackship to see if they release any more shuttles . . . Someone screams on the radio, 'they killed Mullins, just like that' . . . I don't want to go on, I don't *want* to . . ."

Woman's voice, expressionless: "You must go on."

"I'm on my feet, Hsimen says 'sit down, George' and screams and grabs his head. It hurts, rifle fire from the radio . . . I don't want to remember, please . . . Oh, God, it hurts, it . . ." and the girlish voice shrieked shrilly, a high pitch that seemed to go on eternally. It cut into sudden silence an instant before Caldoza switched off.

"Sweet merciful God," said Michael or Barbara. I don't think it was me.

"She never came out of that," said Caldoza. "That's what we got anyway. Backs up the voice recording, the blackship, the seeming unprovoked nature of the attack. But no clue to the nature of the weapon, much less possible defenses. Wish we could have been linked to somebody closer to the actual aliens, but that was George

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Terrace's memory, and it's all we got."

I stood up and walked to the door. The smokey disk of Casseiopeia RF Blue, darkened to magenta by the dome, hung high in the far sky.

"So it's got to be the three year old," I said heavily. "He doesn't have a name, I gather."

"He was named Herbie, Herbert, at birth," said Caldoza. "But as soon as we got your Institute's recommendations, we stopped calling him by name. Tried to atrophy any feeling of self-identity on his part as much as possible. What your recommendations called Alternative Three; as little barrier as possible to his identifying with past lifetimes."

And as little ego of his own to get back to as possible, I thought. Alternative Three: maximum success in prenatal memory combined with minimum chance of ego survival. Alternative Two: heavy ego preparation; little chance of psychic harm, but equally little odds of attaining past memories at all. Alternative One: taking the ordinary half-set human mishmash, and seeing what happens . . . like they did with me.

Poor Herbie with no name; he was getting a rawer deal than I had.

"It's got to be done right," Caldoza was saying nervously. "So he won't go off like the girl did. But that's what you're supposed to be good at, isn't it?"

I frowned, more at my thoughts than at his mother-henning. "No one has *ever* regressed a three year old before," I said. "Nor a four-year-old—successfully. You better realize I don't work miracles."

"But you're in this too," Caldoza insisted on reminding me. "So I know you'll do your best. Come on, let's wake the boy up."

We went out into the violet glare of Cass. RF Blue, and crossed the packed earth compound to another row of structures.

"Any sign of the blackship yet?" I was wondering.

He tapped his ear. "I'm getting constant reports," he said. "No sighting yet."

"Maybe they're not coming."

"We should be so lucky."

We strode along the line of buildings, typical first-generation colony. Hastily raised from wood hacked from trees planted decades back, in early preparation for eventual habitation. If the spruce and squirrels and goats survive fifty years, humans move in. Rough, dim, uncomfortable, ugly shacks. We call them 'throw-ups.'

The dome was the colonists' only luxury, and it must have cost them their next three generations' eyeteeth. Anyway, it was something the first colony hadn't had. That might make a difference. I doubted it. None of the things the dome was made to stop would have been able to cause such fatalities anyway.

The few grim colonists crossing the compound paid us little attention. Most were armed with frighteningly inadequate weapons. Did

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they know it was the damned deadly unknown universe they were up against? Of course; this far from man's sphere, this was all they had, all they could afford. Maxims. Flintlocks. Peashooters.

I asked suddenly, "What did the boy's parents have to say about your taking the kid over? We could hardly get away with it on Tairé without a State order and a lot of public stink." The question was so unlike my usual concerns that for a moment I thought Barbara had asked it. But she wasn't there; it had been me.

Caldoza didn't break step. "They understand the situation, even if they don't like it. Either one human life aborted, or what happened to the first colony may happen again . . . and again."

"Lucky he had parents that were so self-sacrificing. Or maybe just not very paternal," Mike Haskins added. Or the habit patterns engendered by sixty years of Mike's memories added. The ghost of Mike cost me a fair number of friends.

Caldoza had stopped and faced me. "We're human," he said tightly. "It's not your business, really, but Sarah, the girl Dr. Bergoff sent into catatonia . . . Dr. Bergoff is her mother. At the moment, the mother is little better off than the child. As for Herbie's parents . . ." He looked at me hard, "I think you'd better drop the subject."

We gulped.

Did I say 'we'? I meant 'I', of course. I gulped. I.

My own regressions had shaped my character, if only in total reaction to the lives that Michael Haskins and Barbara Simmon had lived. Whatever had happened to that young Timmy Hume, the usual human adolescent mix of selfishness and altruism? He had been picked up for the early regression studies, and they had changed him forever. I had become one of the first to be scientifically and demonstrably lured back across the threshold of prenatal memories; and the very first to be regressed two successive lives back. I had become capable of recalling, as the popular media liked to call it, my previous existences.

Which was not the truth of it at all, I still insisted to myself. *I* was Timothy Hume, and I had never existed in this universe before my conception on Tairé in 2403 old count. And Michael Haskins, born in 2344 on old Earth, had *died* on Tairé, forever and permanently, in 2403. Nothing but his life's memories lingered on, to be picked up by a newly conceived embryo, and buried at a level so deep that, though every human back through the genetic chain of time had had them, hardly anyone suspected they were there, much less retrievable.

And Barb Simon had died on old Earth in 2344, at the age of 17, and she was not Michael, and she was definitely not me. So I kept telling myself.

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I knew who I was, little Timmy Hume of 604-L Greenreach, Hogarth City, Tairé, now in a grown-up body. And I would not want to have been either of those other persons who had bequeathed me their legacies of memory. I refused to admit any shared being with Michael Haskins, who had lived out his term of life in rational hypocrisy, doing nothing of what he could have done because people were just too stupid and society too evil to think of changing. And thinking on his death-bed, "But was this *all*?"

And I certainly admitted no part of Barbara Simmon, who loved everybody and trusted everybody and died of gang rape at seventeen, thinking "but there's some terrible mistake."

So I spent a lot of time trying to insulate the life memories of these two defunct losers from contaminating my own; and a hell of a lot of effort trying *not* to remember their lives, and particularly their deaths. I refused to make use of Barbara's musical skill on the pianolin, or Mike's mild telepathic talents. They weren't mine, so I disowned them. There was pressure on me from the Institute to keep pushing the horizons back; they wanted to make me a living, breathing collection of futile human lives all the way back to Dilmun and Altamira. There was no way. I knew what that would do to me.

Reincarnation isn't what it's cracked up to be.

People these days like to call it 'eternal rebirth.' The ancient Hindus understood the process better.

They called it 'eternal redeath.'

I looked down on the sleeping child, and then riffled through the reports once more. I had to admit the preparation Dr. Bergoff had given him had been thorough. This boy not only didn't know who he was, he didn't even know he was *supposed* to be anybody.

For an amateur, working from recommendations sent two hundred light-years, Dr. Bergoff had done creditably. In the absence of a qualified hypnotist in the colony, the boy had at least been given a full course of suggestion under hypnotic drugs. Now all I needed to restore my confidence was the memory of all the regressions I had successfully carried out in my career—and of course, the recommended fifteen days in which to feel out a solid regression.

Caldoza's voice came through the unit in my left ear. "Hume, hate to have to mention it, but the blackship just showed up on our monitors."

I took a deep breath. Well, had I expected different? I thumbed my communication switch.

"How long do you figure we've got?"

"Maybe an hour tilll they're in orbit," said Caldoza. "Plus however long they stay in orbit, plus however long it takes them to descend, plus however long they stay in their shuttle before they come

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out . . ." He paused.

"Got you," I said. "Look, just tell me when the damned slugs reach orbit, when they launch a shuttle, when they touch down, when they emerge. And anything unexpected. And speak softly. Otherwise, leave me alone, right?"

"Okay, Hume. Good luck." He clicked off.

I set the strobes working, and the colors began to swirl down and around and up the floor and walls and ceiling of the dim room. Then I touched the shoulder of the sleeping boy. He opened blue-gray eyes without moving another muscle, and looked up at me. No expression.

"I'm Tim Hume," I told him. "Do you mind if we talk?"

He had not been brought up to mind. He was putty in any adult's hands.

The boy sat up, feet dangling well off the floor, and folding his little hands, waited patiently for whatever I had in mind.

"We're going to play a game," I told him. "Won't that be fun?"

—WHO'S *the hypocrite*?, thought a voice from my past, but which past I didn't care to think.

The boy nodded indifferently.

"Do you like to remember things?" I asked him.

He looked at me a while, and shrugged.

—*Call him by name*, suggested something within me, but I shut her up.

"Don't you remember things sometimes?" I pressed.

The boy realized I wasn't going to drop it. He thought a while, sullenly. "Rather sleep," he said at last.

I wasn't going to get away from the subject. "What's the earliest thing you can remember?" I asked him.

A long pause, as he considered his clasped hands (left on top, I noticed). Then he looked up at me. "You are?" he ventured warily.

I sighed silently. This wasn't going to be easy. All the usual methods took time. And here we were heading into what at best would be a death trauma, and at worst . . . would be much worse.

"Well, we're going to play the remembering game. Did you ever . . ."

Voice in my ear, "Blackship in orbit, Hume."

"Uh-huh." I continued my spiel with hardly a break. "You know how you remember things that happened to you?"

He wasn't being co-operative; he didn't even want to admit that much. Plump little kid, with a bland round face. The sort a mother might bring herself to love. Finally he nodded a millimeter.

I got up from the cot and paced the room slowly, considering. The soft colors passed over and over and over us. His head didn't move, but those eyes were always on me.

"Suppose I tell you something that never happened? And then *you* go on with the memory—just as if it *did* happen. But of course, it didn't."

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Damn, he was old enough to feel an inconsistency somewhere. "But if it didn't *happen*, I can't *remember* it."

At least he was talking.

"Yes . . . you . . . can," I insisted firmly. Authority speaking. "All sorts of people do it. Anybody can. Didn't you know that?"

He shook his head dubiously, eyes still fastened on me.

"Well, they *can*," I lied smoothly. "And it's a lot of fun to play that remembering game. Shall we try?"

Again he shrugged, which was all he could do when he was scared stiff to shake his head like he wanted.

"It really works," I went on. "I'll show you." I kept pacing, trying to appear as if I were just now making up a previously unthought-of scenario. "Well, suppose you were a big grown-up. You can suppose that, can't you?"

He nodded. That, at least, never fails with kids.

"Okay, you're a big grown-up. That is, you were once upon a time, long, long ago. Let's see. Let's suppose you live around here, because you already know this place pretty well, so it'll help you pretend-remember. Do you understand? You've got to remember when you were a grown-up around here, long ago. But," I leaned over, arms resting on the cot to either side of him, and looked him straight in the eye, "but it never ever *really* happened. You're just remembering a pretend. Okay?"

He nodded quickly, either because he understood or, more likely, to get me back out of close eyeball contact. I resumed my pacing.

"But we can't have it all *just* like it is now, can we? I guess some things were different, back then. Let's not have the dome, okay?, then we can see that blue sun right from the compound. And we'll have wood buildings, but they'll be sort of different ones."

Voice: "Hume, the blackship just sent out a shuttle. You won't have too much time to come up with something. How's it going in there?"

I didn't answer him.

"Well, what can you remember like that?" I asked the boy.

He looked down. "Nothing," he said in a low voice.

"You must be able to remember *some* thing like that," I said sharply.

"I won't," he said dully. "Don't like it."

The strobes went round and round, and I stared at him. Drugs coursed in his veins, he was prepped to the gills with prehypnotic conditioning. And yet . . .

"I won't. I don't like it."

Had I ever expected anything different? Regression isn't meant to be easy. The psyche fights it with all it's got. And with good reason.

Something in me, ignoring my trained experience, had awaited a miracle. It wouldn't be forthcoming. I had hit enough regression

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resistance before to know when I had a no-chance case. Maybe not in days; certainly not in minutes.

I gave up.

And then I was on my knees in front of Herbie and my arms were around him. I felt his small body quivering wherever I touched him.

"Herbie," I was saying desperately, "oh, poor kid, I'm sorry. Forgive me, Herbie, I didn't want to do this to you."

And I was crying.

Herbie was staring off into the dim corners of the room where the lights crissed and crossed, when I dried my eyes on my arm, and looked back at him. His cheek was twitching.

"Please understand, Herbie, it's because it's so awfully important, for everybody. You've just got to try to remember when you were a big person. Or you and me and your daddy and mommy, everybody . . . we're all going to die."

Now his cheek was twitching as spasmodically as a semaphore. He looked at me. "Do I have to remember? Will you *make* me remember?"

And I said "No, Herbie, not if you don't want to. I'd never make you if you don't want to."

And abruptly realized that I, I hadn't said a word in minutes. It had been Barbara stroking him, wooing him, calling him Herbie. Barbara crying, not me.

—Barbara, get out of this. It's my show, you're dead.

—Tim, leave Barb alone. You gave up. She's doing a hell of a lot better than you were.

That was Mike, of course.

I was losing control of my own mind, beginning to think of them as real living persons in my skull. I reached to shut them down.

My ear clicked and Caldoza's voice came in, haggardly. "The alien shuttle's landing in the clearing, Hume. I gather you haven't got an answer yet."

Mike said, "I think we'll have it very soon, Caldoza."

"Thanks for trying," said Caldoza, "but there's no more time. Better stop the regression. Spare the boy's mind . . . if any of us live through this."

One of us thumbed the speaker off. Caldoza could still contact me, but I didn't want him able to hear us at this stage. Girded up though he was to sacrifice the kid, he still might change his mind when it came to the actual slaughter. And I was going through with this, regardless. Mike's ghost had challenged me. I was trying to shuffle Mike back under where he belonged when Herbie said slowly, "I know what you want me to remember. You want me to tell you my dreams."

Damn! How else could a three-year-old interpret a demand for memories that never happened? I opened my mouth to correct him, but Barbara used it instead.

"Of course, Herbie. Did you dream of being a big man in this place?"

His voice was withdrawn. "I don't think I can remember being

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a big man." he said softly.

"Okay, not a man, maybe. Maybe you can remember being a woman . . . or a kid, another kid. Just tell me what you remember."

"Mister," said Herbie, reaching out and taking my hand. "Mister, I think if I start remembering I'm going to get hurt."

"I don't want you to get hurt, dear," said Barbara, pulling him to me. "I love you, Herbie."

He looked up at us, amazed.

"You . . . love me?"

We tipped his head up and Barbara kissed him gently. "I love you very much," she said, and it was true. I sat silent and let her talk. "I would never ask you to remember . . . frightening things, except it's very important. If you can remember, then maybe . . . we can stop other terrible things happening to all of us. *Really* happening."

And Mike tousled Herbie's hair. "So come on, big boy. You can do it, Herb."

Herbie looked at them a long while and then suddenly threw his arms about me and kissed Barbara. "I'll try," he said quickly. "Cause you want me to. But it's . . . bad, it's ugly."

"It can't be too bad, because it never really . . ."

Herbie looked me in the eye. "No. It really happened. I know."

Without waiting for a response, he closed his eyes and his face softened in relaxation. There was a long stretched waiting as my laced fingers tightened painfully as if I prayed. Then slowly Herbie slumped backwards on the cot, his arms and legs waving meaninglessly, like reeds in an eddy.

I reached out to touch him, and Barbara stopped me with a thought. Herbie opened his eyes and looked up at us with the gently vacuous smile of an idiot angel. His mouth opened and closed slowly, voicelessly.

And that explains it, thought Mike. *Did you get it, Barb*?

And Barbara thought, *How simple, how sad. Do you think Tim can handle it?*

Not yet, returned Mike.

"Hume," came Caldoza's voice. "The aliens are emerging from their shuttle. As soon as they come within range we're opening fire. You can be more help out here now." A pause. "Is the boy all right?"

What are you two keeping from me?, I thought furiously. *Damn it, I've got to know what's going on.*

Mike was snapping at Caldoza over the communicator. "If you fire on them, I'll have your ass strewn around this whole planet in little pieces!" A stray bit of me wondered what had gotten into Mike; he'd never acted like that in his own life.

He's not listening, said Barbara. *He's switched off*. She put my arm around Herbie's shoulders. *Help him up. We've got to go out and stop this craziness.*

I planted myself firmly, feeling the others tugging at my muscles,

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but, with concentrated stubbornness, keeping them mine. "I'm not moving a step till I know what's going on," I insisted.

Tim, listen. The aliens landed in the same clearing we did, came along the path, and met their first human by the big tamalpo tree . . .

"How do you know all this? Herbie hasn't said a thing."

I felt a hasty consultation behind walls in my mind from which I was shut out, and then Mike said, *In his last life, Herbie was a strong telepath, Tim. He sensed everything that happened that day to everyone, though he died before he could sort it out.*

"That doesn't make sense," I shouted, shouted to myself in a dark room.

Herbie's got the memories of Lashag, his previous life. Herbie himself's no telepath, but I am and I'm feeding the data to Barbara.

"And not to me!" I was outraged to my core.

Please, Tim, said Barbara. *Trust us.*

"Why should I?"

To survive! snapped Mike, but Barbara pushed him aside.

Because we need one another, she thought like a caress. *Because we know each other as well as we know ourselves. Because we love one another.*

"No!" I yelled, stepping backwards as if I could avoid her that way. "You aren't people any more. You're just dead memories!"

Living memories, Mike corrected gently. *When we were alive before, we were held in life by the neuronic structure of our own brains. Now we are held in life by part of yours. Is there such a difference?*

"But I . . . ." Staggering like a drunk, flinging my hands before my face, I was running scared, disgusted, finding no place to hide. I could not *let* them be living persons. How could I live with people who *knew*, knew everything about me, from every time I jacked off to how I let my father die without word from me, who knew the hate for others and myself that lay under my jacket of cold professionalism?

We know, we've always known, said Barbara. *And you can see for yourself what we think of it. You know us, don't you?*

And I saw her as she saw me, through and through, and saw she did know, and suffered with me, and loved me with and through it all.

And this time the tears were mine.

We can do something about all that old muck, Mike was saying, *if we work together. But for now, we've got to move fast, or we're dead all over again.*

I let them lift the limp boy and carry him from the room. We emerged into the violet-lit compound and started across it at a rapid trot.

What's the story on the massacre, Mike? I thought, saving speaking breath. *I can take it.*

An accident, a misunderstanding, said Mike. *We've got to keep*

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from repeating it. We've got to.

Abruptly Herbie stirred on my shoulder and uttered words, slurred out intelligible. " . . . the alien, tall and thin and cunningly jointed, it travels the stars and seeks for answers as we do. But . . . it is very uneasy."

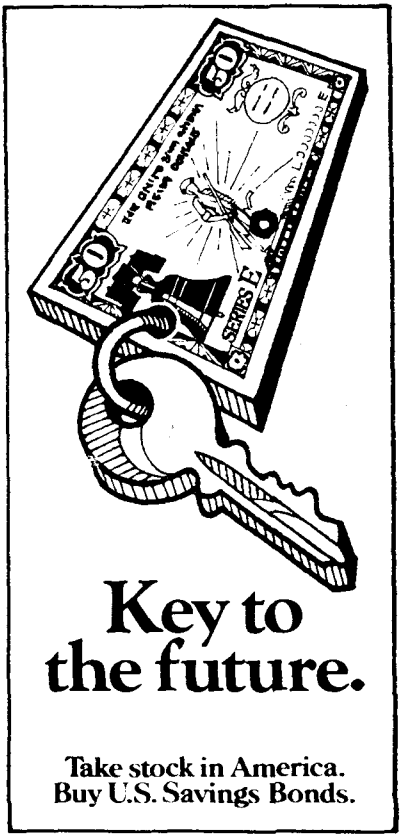
Lashag's reliving the first contact, explained Mike. *Barbara's teaching him the words through me.*

We ran towards the gate, the heavy projectors set in it, the armed men staring outwards. Caldoza, glaring out through the translucent dome to where the path emerged from the trees, turned rapidly at our approach. We almost plowed into him before we could stop.

"We've got it, Caldoza," said Mike. I still didn't know what we had discovered, and hung on every word that came out of my mouth. "The aliens are strong natural telepaths. They came without hostile intent. They were just trying to communicate."

Every face turned towards us. Caldoza's was a study in hope, disbelief, and confusion. "But they murdered . . ."

"The first telepathic probes caused great mental distress in the humans." Mike hurried on. "Someone shot, and both humans and aliens panicked. The aliens . . . well, they began *shouting*, telepathically. They couldn't know that our minds are as unprotected against telepathic overstimuli as theirs against too much sound or light."



"But we can't just allow . . ."

There was a sudden collective intake of breath from the men at the gate. I looked out to see flowing shapes sliding from beneath the trees, huge shapeless purple worms.

In the sudden silence Herbie's slow voice could be heard. "They fall, they die," he was saying sadly. "Too late I realize that the stronger I call, the faster they die; my mindcalls are killing them. Now Golard is dead, and Trephanie, and I die, and scores of

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marvellous feeling thinking beings are dead, and we have done it. We did not mean it so, oh truth, we did not . . .'' Silence.

''Not your fault, Lashag,'' Barbara said. ''You couldn't know. We love you anyway.''

The idiot angel smiled, softened and faded away, and Herbie was a three-year-old again. I set him carefully on the ground, where he clung tightly to my hand.

Caldoza was looking at Herbie in awe. He and I were coming to understand at the same time.

''Yes,'' said Mike. ''Herbie's last life . . . well, he wasn't one of the colonists. He was one of the aliens.''

I waited for myself to stiffen in fear and disgust, and became aware at once I wasn't going to. The projection of my fears onto unknown Others was gone. Mike and Barbara had touched these alien minds and trusted them. And I trusted Mike's judgement and Barbara's heart.

We looked at Caldoza, alone in himself and afraid among his men, and pitied him.

Did I say we? Well, I meant we!

''We're going out there to meet them,'' I told him. ''Herbert and I will be emissaries.''

''Going *out* there!'' gasped Caldoza. ''Just the two of you?''

I smiled. ''Five of us,'' I corrected gently. ''Three of me, and two of Herbie. It should work out all right now. We're prepared for mental contact, we can communicate through Mike and Lashag, and we think of them as friends, not ugly killer maggots.''

Caldoza looked dazed, don't blame him. ''Friends!''

''We'll stay out of that telepathic panic cycle,'' said Mike.

''I'm not about to blow it, now I got another chance to do something right.''

''I want to meet them,'' said Herbie. ''I think they're neat.''

''They're an admirable people,'' said Barbara. ''They can teach us love.''

''We are looking forward to sharing lives with you,'' said Lashag.

''So don't worry,'' I said. ''We've got you covered.'' ■

● He looked at his own Soul with a Telescope. What seemed all irregular, he saw and shewed to be beautiful Constellations; and he added to the Consciousness hidden worlds within worlds.

Coleridge, *Notebooks*

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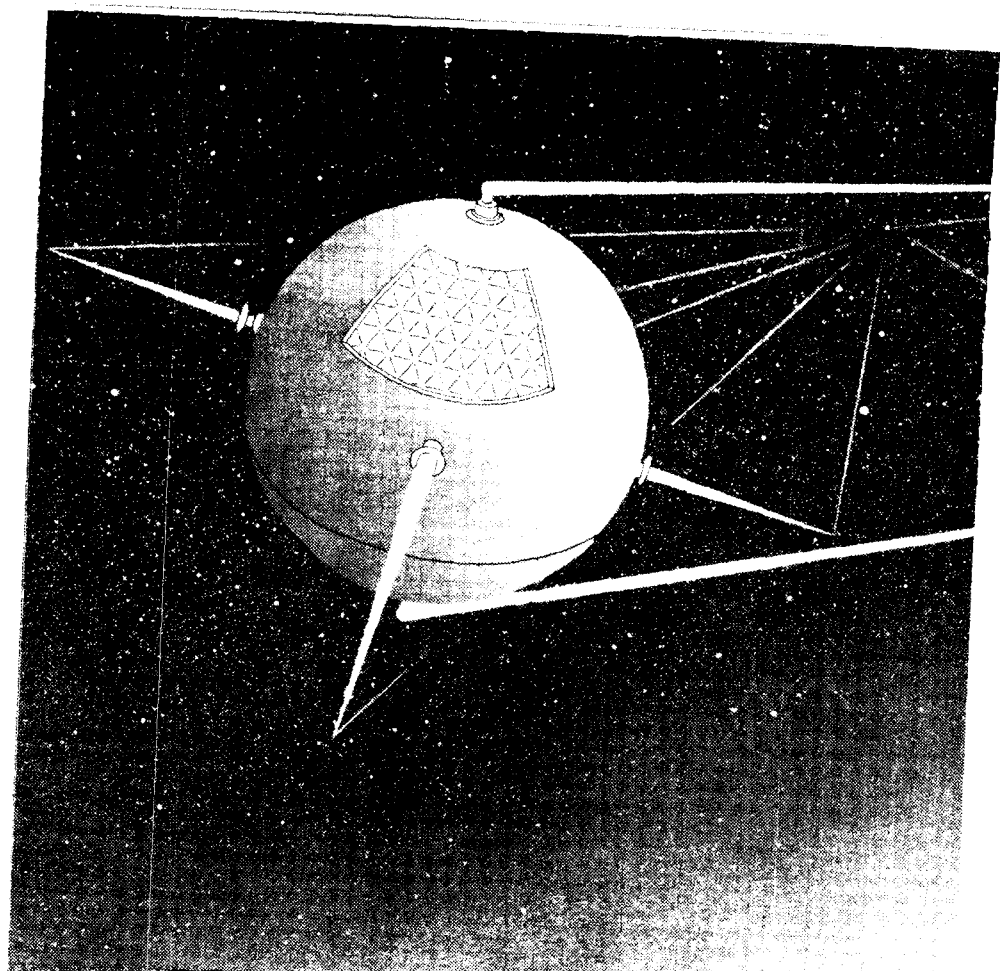

THE SWORD SLEEPS

Imitation
is the sincerest form of flattery—
but flattery, *per se*,
is seldom the ultimate goal.

RAYMOND THORNE

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Broeck Steadman

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"Ah, there's nothing like the clackety-clack-clack sound of paper being hit by small pieces of metal being propelled by phalanges exercising on the various and sundry keys commonly found on a typewriter," Donald Balfour exclaimed W.C. Fields' style. "Nothing like it. Where is it? There's a boisterous dearth of that familiar cause of atmospheric vibrations emanating from this room."

All Don's employees were trying to shush him. "Everyone's watching the telly," his cousin and private secretary informed him.

"They are, eh? Wonderful! At least everyone's doing *something*!" the boss exclaimed.

"Yank, Mr. Whitlam's returning to St. George," another employee replied in a tone demanding silence.

"Drat! Three weeks of happiness ruined by his reappearance," Don said, not totally facetiously.

"Will the Secretary of Tourism please *shut up*?" another cousin demanded.

After watching the Whitlams deplane and give a nice-to-be-home speech, several of the office workers asked, "Yank, may the Tourist Bureau go outside and welcome Mr. Whitlam home?"

"No," the boss replied. "You've all goofed-off enough." There were howls of protest. "Anyone who goes outside is fired." The place emptied. Don shrugged and turned off the TV. He then went outside and watched as the most beloved man in the country rode by to the adulation of the people. The employees soon returned to their desks and resumed their normal activities.

Don went into his office. The title under his name on the door proclaimed "*Pupule*," Hawaiian for "crazy." The word was chalked on the door the day the Bureau opened in May, 1981, and Don liked the description better than his official designation. He busied himself by glancing through reports of his family's enterprises. For over a hundred years every Balfour had achieved an individual identity in part by using his "spare time" to amass a personal fortune through a business venture. Margaret and Paul, the two living exceptions to the characteristic only-son-and-heir of the Balfour family, had already announced their business ideas. To their undisguised glee, their big brother was still without inspiration.

"Yank?" a secretary said, entering her boss's office without knocking. "In this pamphlet you dictated yesterday you stated that Mt. Sword is extinct. But that's not so."

"Well, whatdayawant? If you say it's probably the reason this area was once known as 'the place of death, where water burn and everyone die' and it's one of the most violent volcanoes this side of Io, then you won't get no tourists. 'Sides, it ain't even gonna burp for a few years, at least."

"How would you know, then?" she asked incredulously.

"Balfours know all about volcanoes," another secretary interjected before he could answer. Don left his office and walked up to the interrupter. She continued, "It's common knowledge that Joshua made the Dragon by collapsing the top to plug the conduit, sculpt the four legs and tail, and placed the parasite volcano precisely where the head should be. And everyone knows that my cousin has a switch in his office

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to make the Snout steam so that the Dragon can send his good luck to his friends—who also happen to be your friends.''

''Yea? And when did he do alla this?'' Don replied.

''He did it on his secret trip here, before signing on with Captain McKay. That's how Joshua just 'happened' to have named everything of importance on the four islands,'' the secretary continued. ''St. George Island was a talisman against the Dragon, Harmony Channel for the first ship to sail its waters—''

''How could he have—''

''Tapu Island, which was steaming lava down to water's edge, therefore *tapu* to life—''

''It just happened that way.''

''He had it all planned,'' a cousin stated. ''He sent the *Harmony* first through Harmony Channel, whilst he stayed on the *Discovery*, so it wouldn't look odd when he sent the *Harmony* close to the Dragon when the Dragon was about to attack. Then when the sailors were huddled in Sanctuary Harbour—and who named that?—they were receptive to his suggestion that they create 'a new Eden'.''

''What about Captain McKay?''

''He was in on it,'' another secretary went on. ''That's why he was so receptive to sailing back to Nui and to secure 'Breeding stock to make the Desert island habitable, to Wit: Livestock, Plants and Women.' And they also got Hedwig so Joshua could complete his little scheme—'the language.' ''

''That's not—''

''But who else would have been angry enough at her 'gods' to retaliate when she learned the truth?'' another cousin asked. ''Who else could have conceived of using English as the weapon? It was a stroke of genius—that he knew she had—to pretend that all the women in 'the place of death' were actually dead, so they wouldn't refer directly to themselves or to their 'dead' relatives, nor would they break the *tapu* of using the living names of dead people.''

''Joshua must have enjoyed seeing every sailor going bonkers over their attempts to correct the 'ignorant' women,'' the receptionist observed.

''Yea, and he loved the way his wife would pound on him. Bam! Bam! Bam!'' Don pounded his fist into his palm for emphasis. His involvement in the discussion encouraged the women.

''Joshua kept irritating Hedwig so she'd occasionally thrash him and eventually try to run away,'' the receptionist traveled along on the same vein. ''And when jungle growth did allow her to build the boat in secret and she did slip away, Joshua took advantage of it to follow-up his practice of naming places. By the time she awoke the next morning in Balfour Bay to the smell of two burning boats, Joshua had discovered that Tapu Island's smaller isthmus had eroded away, creating 'a new island' and the strait he named for himself.''

''And when she found out he had followed her and would always follow her no matter where she went, she really beat up on 'em somethin' fierce,'' Don enthused, slashing the air with his fists.

''And she never left him again,'' a cousin stated.

''But she beat 'im up constantly,'' he cut in. ''Like, when after the earth-

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quake, when the other isthmus sanked—''

''Sanked?'' the women asked in unison.

''Sunkded. He said where they lived was 'a mere fragment of the larger landmass' and then kinda refused to name the strait after his wife, like she insisted. Boy! did she do a number on 'im!''

''But he listened to the woman and named it Hedwig Strait, eventually,'' another secretary commented.

'' 'Cause he was gonna anyway,'' Don said, ''just like your boss ain't gonna let nonea you have the resta the day off. Back to work.'' He returned to his office as all the women groaned.

''Why is it he lets everyone off when he sees a tern in flight or the tide's going out, but not on an important day as this? Doesn't he realize how important Mr. Whitlam's trip is?'' a cousin protested.

As the first American-educated St. Georgian, Don knew how insignificant the rest of the world considered the four islands. And he knew what a blow it would be to Whitlam's ego.

''Here's the computer printout of this afternoon's plane manifest,'' his personal secretary said as she entered his office.

Don scanned the list and smiled. ''Tell the Hotel that it's the third time for the Hendersons and the second time for the Umezawas, the Tazukes, the Nakajimas, and the Goldbergs, and to act accordingly. This's the best lista repeat offenders yet. If you guys hadn'ta tried to butter up your boss by sayin' how great his family is, you all woulda had the resta the day off.''

''But last week my cousin said—''

''Who does the secretary listen to, her cousin or her boss?''

She felt like screaming.

The phone rang and the personal secretary barely got out of the way as he charged past her. He wrestled the receiver away from the receptionist and answered, ''Black Pussy Café,'' as he jumped onto her desk.

''Yank!'' Whitlam shouted from the earpiece, ''is that any way to answer the telephone?''

''Of course,'' Don replied. ''Oh, by the way, Mr. Whitlam, the Secretary of Tourism can't make it tomorrow. He has to attend a Cabinet meeting concerning St. George's image; the President thinks it's too Polynesian and not European enough.''

''Who told you about the meeting?'' Whitlam demanded. ''Brian?''

''You did, Sir. Just now,'' Don replied innocently. ''Catchyalater.'' He hung up and spat, ''Great! A Cabinet meetin' tomorrow.''

''But you enjoy such things,'' the receptionist teased.

''Not even once. Everyone else there is half your boss's age—''

''Half?''

''Or twice. Or more so. And they expect the Secretary of Tourism to act like he has some dignity.''

''And what had you planned for tomorrow, then? Be with a pretty tourist and irritate Lizabeth?''

''Who?''

''Who indeed!''

''Well, she's actin' like she was born on New Island.''

''New Island? But that's the bird sanctuary. No one lives—oh, is that how Balfours say, 'She acts like she has Balfour blood' then?''

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"Hey, quit actin' like everyone in the family's as important as your boss."

"But last week you said—"

"Stop livin' in the past.

"Great vibrating quartz!" he exclaimed as the polysyllable comedian, "it's time to quit this den of iniquity and travel to the nest of the big, noisy bird." He jumped off the desk and ran into his office and covered his bare chest with a t-shirt proclaiming "*Bula Vinaka*," Fijian for "Hello, thank you," or in Tourist, "Hello, thank you very much for coming." He ran to the front door and stopped to listen. "Clackety-clack-clack," he continued as the bulbous-nosed character, "what a marvelous sound. Someday you women will learn to put paper around your platens. Well, BON VOYAGE!"' He lept out the door and then back in again and said in his idiot-native persona, "Boss go talk tourists. Ask many questions. Learn answers for 'puter. Fool tourists. Them think no 'puters here. Them dumb as you look." He jumped backwards out the door and ran to the airport.

Whitlam was standing on the terrace of the Cabinet Chamber, watching steam rise from the Snout. "Someone's having good luck," Don observed.

Whitlam banged the railing. "Yank, don't creep up on people!" He studied the young man. "Presumably, Yank, you realize that you're in the Government Building, not your permissively casual restaurant?" The President sighed. "Sorry, Yank, but it was the most difficult three weeks. Apology accepted, then?"

"Yea."

"But, Yank, in the future, please try to look more like a government official and less like one of your friends. Tourists don't seem to know any better."

Brian Downings, Foreign Secretary, entered the balcony. "Hullo, Earle, don't you look spent!" he greeted. "Not much sleep, then?"

"Too much to think about last night," Whitlam replied, shaking Downings' hand.

"Hiya, Yank!" Downings slapped Don on the back. "What? Cat got your shirt's tongue? It has no motto today."

Don looked at his t-shirt. It showed indigenous birds and flowers. "The clothes have already been noticed, Uncle Brian," Don stated hesitantly.

Downings looked at Whitlam. "Perhaps you should cancel the meeting and get some rest, then? You must be too tired to attempt to rectify such a hopeless situation as the lad's habiliments."

Someone entered the Chamber and Whitlam excused himself.

"He did apologize, Uncle Brian," Don volunteered.

"Did he mention your hair?"

"No," Don answered, brushing his collar-length hair against the nape of his neck.

"Well, he should have. Remember what the Apostle Paul wrote in First Corinthians concerning long hair on men?"

"Waste not thine efforts on an hopeless situation?"

William Cooke, Secretary of Industry, joined the two. "Mr. Whitlam's not too cheerful today, eh? This used to be the pleasant diversion."

"He is rather like the passing cloud," Downings agreed.

Don sniffed the air. "Time to go in-

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side. The wind's comin' from the power plant."

"It's the volcano, Yank," Cooke corrected.

"To a tourist it's the volcano," Don countered. "But to a St. Georgian, it's the fumes from an antique from the War."

"Very sorry, Yank, but the law forbids any construction on the Dragon, even to tap its waterfalls," Cooke replied.

"Which is just as well," Don retorted. "The hydro plant on Sword is very ugly."

"And now who's complaining about a hopeless situation, Yank?" Downings asked. "Oh, will you get your mummy to hem your trousers, then? They're terribly ragged."

"Cutoffs are supposed to be frayed," Don stated.

Cooke shot a glance at Downings, who indicated it was time to go inside. The three joined Whitlam, who was talking with Wilfrid Mackenzie, Secretary of the Treasury, and Stanley Bennett, Secretary of Land.

"Shall the meeting commence, then?" the President asked as he took his seat. When the others took theirs, he turned on the tape recorder and banged the gavel. "Right. Gentlemen, the President shall properly bore you with his travels at the Assembly meeting. He will merely state now that St. George is virtually ignored by all but the most local of neighbors. And he wishes to hear an idea that will make the world think of the four islands as more than volcanoes and palm trees, the nice place to holiday."

"What's wrong with that?" Don demanded, his eyes ogling.

"Nothing. Nothing at all," Whitlam answered. "It's quite the proper appearance for your vagabond friends, but not for international dealings of importance. St. George has perhaps the most potential of any country in the Pacific that has been granted independence since 1960. This is because the people have literally built this country up from the soil. This meeting, then, is to determine what St. George can show the rest of the world."

"Haven't several leaders suggested the reciprocal visit?" Downings asked.

"Yes they have, Brian," Whitlam replied. "And you are handling the arrangements very nicely, too."

"Perhaps a larger fishing ship," Cooke tentatively offered, while Bennett realized, "St. George's fertilizer is unexcelled," and Don said, "Launch a satellite," as Mackenzie thought aloud, "A special for the telly isn't a bad idea," and Cooke continued, "More fishing would allow more exports," and Mackenzie droned on, "The show could be repeated."

"Gentlemen," the Foreign Secretary spoke up.

"—why, even in the States programs are sometimes repeated," Mackenzie continued. "What? Oh, yes, Brian? You were saying, then?"

"Gentlemen," Downings said again, "presumably what Mr. Whitlam wants is something a bit more unique. Suppose a boot factory is built. It could be a very good boot factory making exemplary boots. Every citizen in the four islands could be bursting with pride at the industry. But to the visitor from, oh, Britain—or even Nauru—it would

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all be a crashing bore. It would mean nothing, gentlemen, because they see boots in their homes. People wear boots every day—most people." Don ignored the crack. "If anyone wished to see a booterie, he would travel across town, not halfway around the world.

"What Mr. Whitlam wants, then, is something familiar enough to be comprehended, but not necessarily understood, by most people. And it must not be dismissed as a ball of fluff."

"Gentlemen," Whitlam added, "you all know that the wealth of a nation is more than what can be extracted from the ground or surrounding waters. The people. The people are the wealth that can make the four islands the most respected nation in the Pacific."

"Don't get carried away with this, then, Earle," Downings warned.

"Brian," the President responded, "after the ground turns to dust and the waters dry up, the mind of man will still be fertile."

"Two heads are better than one, but six make half a dozen," Don derided.

"Yank, this is a serious subject!" Whitlam shouted.

The room was silent. Suddenly inspired, Whitlam looked frantically through the pile of books he had with him. He found what he was searching for and cried, "Gentlemen! Gentlemen, a few years ago the Russians did something that transformed their image in the West from one of stubby-fingered dolts to that of at least intellectual and technological equals of Western technology. They preceeded the States by several months—and the embarrassed Americans had to settle for second place. Later, it brought prestige to France, China, and other countries when they proved that they had the same capabilities."

"What?" Cooke asked.

"Restore life to dead ping-pong balls," Don stated.

Whitlam glowered at the insolent one. "Launch a satellite into orbit."

"Earth orbit?" Don asked.

"Of course Earth orbit!" Whitlam shot back. "Where else would a satellite orbit?"

"Think this through, Earle," Downings suggested.

"Brian, what has space brought about?" Whitlam replied. "Famine, disease, death? Of course not! Just the opposite! It has enabled doctors to explore and monitor the human body, kept nations honest by observing unauthorized weapons testing, discovered blight before it was noticeable from the ground, made alloys of purity impossible on Earth, and has brought the world closer together through communication satellites.

"Prestige, gentlemen! St. George will be an equal among the leading nations after it, too, has a space program."

"But the tourists take home a favorable impression of the four islands," Don protested. "Isn't that good enough?"

"Vagabonds!" Whitlam derided.

"What about the Olympics?" Don persisted.

Whitlam snorted and removed himself from the room.

"Yank," Bennett interjected, "tourists and games are all very well and good, but St. George is above such nonsense. A truly great nation doesn't need

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the itinerants of the world, nor running in circles, for prestige. St. George has the wealth of the people. What else does it need?

"Tourism, sports competition, and heaven knows what other foolishness is tolerated because otherwise the four islands look isolationist or standoffish."

"Yank, lad," Mackenzie took over, "you run the tidy ship with your bureau; the Hotel and Airline produce nice little profits. But Mr. Whitlam is trying to plan St. George's future—and that's a *man's* job."

"Yea, OK," Don said unconvincingly.

"Brian, talk to the lad," Mackenzie pleaded.

Downings took Don into a closet. "Mr. Whitlam could sabotage the Plan no more effectively had he known about it," Uncle Brian complained.

"Hey, Uncle Brian, why not give 'em what they want?"

"But, Yank, if Mr. Whitlam's plan is for publicity, then the entire effort is senseless. If it's the start of a space program for St. George, then it will be the ruin of the four islands. Such effort would be an enormous undertaking—too much for the country to handle with its limited resources."

"Yea, but who's the best person to take advantage of the situation without anyone knowin' they're not gettin' what they want?"

"But Yank, what if Mr. Whitlam does succeed in his little scheme? What about your family's planned, gradual progress that has allowed the country to adapt to change without the problems it brings to other countries? It would be lost in the mad rush for parity with advanced nations."

"Hey, Uncle Brian, *c'mon*!"

"The decision should be voted on by your family, but very well, then. You've been operating the Plan successfully so far." Downings conducted his young charge back to his seat.

Whitlam had returned. "The vote so far is four in favor, which is enough to carry," the President informed the two. "So, for the record, then, how do you vote?"

"Yea, OK," Don shrugged. Downings nodded acquiescence.

"It's unanimous, then," the President stated.

"St. George isn't known for its abilities in space—yet," Don mused aloud. "If the country announced its intentions, it would be the laughing stock of the U.N. They'd treat St. George the way, oh, they would if you announced your intention of building a bridge from here to Sidney."

"Then it shall be done in secret!" Whitlam declared. He went to a shelf of reference books and returned with the Bible. "Gentlemen, the President demands from each and every one of you an oath of silence." He opened the Book and placed it on the table. Cooke, Bennett, and Mackenzie joined him in placing their right hand on the Holy Writ. Don looked at Downings, shrugged, and complied. Downings sighed and complied.

"Right," Whitlam observed. "Now, raise your left hand and state your office, and repeat after the President: With hand on the Holy Word, I agree to remain uncommunicative about the designing, construction and launching of

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a satellite and its launch vehicle, to any person or persons, except it be to him or them to whom it is known that they have similar knowledge to that of the one whose hand is on this Book, until the successful completion or official abandonment of this project. In the name of the Great Creator and on the word of a gentleman, so be it." They removed their hand and Whitlam took the Scriptures, kissed it, and passed it around the table for the others to do likewise.

"Right. Now to the planning," Whitlam suggested, closing the Bible.

"Yank has some small talent with designs," Cooke suggested. "The hotel plans have proved to be quite exemplary."

"Yank, would you be so kind as to provide a few sketches for the satellite and rocket launcher, then?" Whitlam asked.

"OK," Don shrugged.

"Then it's all settled," Whitlam declared. "Right. Meeting adjourned." He banged the gavel and turned off the tape recorder.

"What about this, then?" Bennett asked, pointing to the electric eavesdropper.

"Don't worry, Stanley," Whitlam answered. "This tape shall be placed in the President's personal safe and no transcript shall be made of it."

"B-but s-suppose someone wishes t-to review the tape or asks ab-bout the transcript, then?" Bennett protested.

"Stanley," Whitlam replied knowingly, "in the two-and-a-quarter years since Independence, the only ones who have referred to Cabinet minutes have been the Cabinet members—and even then only very rarely. No one else in the Assembly, let alone the four islands, cares what goes on during these sessions, only the results."

"Good!" Don beamed. "Next time, why don't you have an orgy?" Stony silence. "How about reading *Peter Cottontail*?"

Three Cabinet members snickered at a fourth. Whitlam closed the recorder and put it away. He turned sympathetically to Downings and said consolingly, "Brian, you have the pity of a great many people." The four left the mentor with the lad.

"Boy, if they ever found out where their ideas come from," Don spat.

"It would crush them," Uncle Brian reminded him.

They left the room and entered the lobby. "Hey, maybe the Secretary of Tourism should be on the gymnastic team, instead of track," Don mused. He did a few backflips, then walked on his hands to the front door and tried to open it by leaning on the panic-bar.

"Yank," Whitlam exclaimed in exasperation.

Don uprighted and looked contrite at the President. Then he saw Liz outside and rushed onto the steps. "Hey, *taupou*!" he called.

She did her transparent best to ignore him. George Scott kissed his sister good-bye and ran up the steps to his training partner. "My little sister doesn't like being called the village virgin."

"Neither does your trainin' partner," Don growled.

"Then why did you ignore my big sister after graduation, when she was eager to be your wife?"

"'Cause you can't found a republic

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with some dumb broad hangin' 'round your neck—or thereabouts."

As the two outsiders ran down the steps, Whitlam asked, "Out of sixty in the Assembly, why did the President pick the Balfour?"

"Because an entire nation would have questioned your competency to govern if you hadn't," Downings reminded. "And were John still alive, you would have asked that question sooner and more often."

"But he was a great man!" Whitlam protested. "He was the primary force behind the Independence. Th-the Constitution lept from his head like a Pallas Athena. Surely you don't suspect Yank of such greatness!"

"No Balfour was ever capable of such greatness," Downings sighed, "*especially* John. But they have all achieved it." And it wasn't all due to advance planning. "It's one of the great mysteries of the cosmos."

Don rounded Stargazer's Point and entered Balfour Bay, the oldest continuously inhabited parcel of land on the four islands. He cut the motor and paddled to shore and beached next to a similar outrigger. The design and method of construction of the boats was centuries old, but the fibers of the sennit were invented in Wilmington, Delaware. Silently, he laid his paddle on the seat and climbed out. As he pulled the boat onto land, his feet sank into the sand and the grains clung to his toes and soles.

The invisible jungle birds were joining the penned fowl in a passerine chorale and were contrasted by the grunts of a porcine chorus, creating a symphony to life. Fragrances from dozens of different flowers wafted gossamer-like in the slight breeze. A sand crab sidestepped the water as it ran along the beach.

Don walked up to a house made of war surplus cinderblock, clapboard, and corrugated tin roofing. The house walls and barnyard fence were freshly whitewashed. He stood in the doorless entrance and blocked the light of a woman sitting at the kitchen table, intently writing. She looked up to see what happened to the light and was instantly squeezing the life out of her son.

"My momma acts like her son just returned from the dead," Don gasped, trying to come up for air.

"He may just as well have," Momma admonished, holding her son at arm's length. "He ignores his aging momma as if he's ashamed of her."

"Your son sees his momma every Sunday in Church and every day at the Hotel—and he has a hard time gettin' a seat at her station 'cause she's the prettiest waitress in the South Seas."

"But he never visits his broken-down momma at her home—his home too. He owns it. And with his momma's younger daughter and younger son away in another world, the oldest son is her only family. But he never visits her unless he wants something." She stopped to think. "He could have come here when his momma's at work, but he didn't! So that means he wants a nice, home-cooked meal."

"But it's three o'clock . . ."

"It will take time to fix."

"But your son's in a hurry."

"The world can turn without my son for a few hours, while he eats his

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roasted pig. A nice plump roast pig.''

''Not roast pig.''

''Southern fried chicken, using the recipe my son brought home for his momma and the Hotel.''

''Your son will stay for dinner only if his momma doesn't do any cooking.''

''No cooking! What's a momma for if she can't cook? But my son means he wants something that doesn't require cooking. Fish. Your little brother's equipment is where he left it.''

''My momma drives a hard bargan.''

''My son's clever in making his momma prepare his favorite meal.''

''Lasagna?''

''If my son catches the lasagna fish, it shall be prepared with the others.''

A similar scene is played every day Momma has off.

Since his own gear was back in his apartment, Don took his brother's goggles and fish net. Back outside, he found his mother preparing a taro-leaf ''dumping spot'' for the catch. He dropped the gear near the water's edge and gave his momma a peck on the cheek. Then, as easily as he had walked across the sand, he climbed a palm tree overhanging the water. ''Has my momma ever been a target in a carnival?'' he asked, holding a coconut and grinning mischievously.

''Your momma has letters to write.'' She turned and started for the door.

Don threw the coconut away from his mother. ''My momma's no fun!'' She stuck her tongue at him. A second coconut sent her scurrying inside.

Don threw down several more coconuts and also a few palm leaves. Then, taking a deep breath, he dived into the waters of his ancestors. The sunlight waved like a yellow curtain against a field of blue. Fan coral, coralline algae, red sponges, and sea anemones seemed to wave in the breeze. Water was Don's second element and he was at home as much in Balfour Bay as he was along its shore.

''Who is my son feeding? The entire world as well as his little brother?'' Momma asked as her son once again dumped a net full of prawn on top of the overflowing pile of oysters, prawn, nato, parrotfish, still more prawn, and squirrelfish.

''Your son got carried away,'' Don explained. He climbed out of the water and gave his momma a peck on the cheek. He returned to his room as she happily tackled the cleaning operation. Back in his room, Don threw his wet swimsuit on top of the borrowed gear. From the back of his closet, his ''cold storage,'' he pulled out a box containing all his college books. He emptied the box book-by-book until he found the text on electronics. Then, in a concession to the President, the Secretary of Tourism found a pair of sneakers in fairly good shape. He rummaged through his brother's bureau drawers and found a swimsuit the big brother *knew* was hiding back in his Chatham apartment. He put on his formerly purloined pants and hid his brother's goggles in his sister's room. Back outside, the oldest son tried to steal a shelled prawn, but his momma slapped his hand and told him he would ''starve until he cleans up his chamber.'' The son grumbled, but complied.

After only four helpings, Don decided he could eat no more and lay down on the beach. He rubbed his belly

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and purred contentedly.

"Dessert," Momma declared.

"Your son's too full."

"My son needs papaya."

Don opened his mouth like a baby bird. Momma kicked him and he struggled upright. He took several bite-sized pieces of the melon off a taro-leaf plate. He laid back down and popped the fruit into his mouth. "That's better," he sighed.

"Will my son help his decrepit momma to clean up?"

"Your son will clean his silverware." He licked the poi and fish sauce off his fingers.

Momma studied the scene of her son and used taro and palm leaves littering the beach. "How can my son except everyone to recycle their wastes when he's too lazy to do it himself?" Don's eyes were closed and he was breathing rhythmically.

The next thing Don knew was something hitting his chest. He awoke with a start. In the waning moonlight he could make out his momma holding a bag over his face. "Your son will never get a wife if he walks around looking like his momma drops bags of oyster shells on his face."

"My son will never get married because he sleeps his life away on the beach." She lowered the bag and he got up.

Don picked up the object that snatched him from Morpheus' side. "If my momma wrote these letters while her son was asleep, he must be Rip van Winkle."

"They were short letters, started earlier and she only wrote until the telly went off."

"Then it's after midnight." He stretched. "This's the only place in the whole world and the Lesser Antilles where your son can really, really, really relax."

"My son should recharge his batteries every night, instead of when he needs it. With his magic computer terminal, he could solve problems just as easily from here as he does in Chatham. And perhaps Lizabeth doesn't like her men so cosmopolitan."

"The really cosmopolitan people in Chatham don't care what happens to the resta the four islands."

"What has Mr. Whitlam done now?"

"He came up with a bright idea—four outa six surveyed think so."

"Does the bright idea include the book on electronics and sand shoes?"

"Oh, yea, they're—"

"In the boat."

"My momma shouldn't worry; as long as Whitlam thinks he's six-for-six, there won't be a problem."

"Especially if Brian agrees with my son."

Don pecked his mother on the cheek and dived into the water to wash off the sand. He climbed into the boat. "Why the ice chest?"

"For tomorrow night's dinner. Your momma kept enough for herself—and the People's Republic of China."

"My momma shouldn't've."

"Has my son the letters?" She held up the letters and oysters and dropped both bags into the boat. They tearfully hugged and kissed. "God be with my son," Momma wished as she launched the boat, thus helping him to leave her.

"That's a beautiful boobie," Bennett

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marveled, admiring the carved bird.

Whitlam smiled. "Balfours aren't the only ones with 'spare time.' It's the gift for young Cabot and his bride. More and more it seems that the President is an honorary member of every family on the four islands. It's difficult to know what to get virtual strangers. So, since young Cabot is a fisherman, this will remind him what bird to follow."

"He'll need the reminder," Don said.

Whitlam pounded the table, almost upsetting the bird's flight. "Yank, don't creep up on people!"

"That's a fantastic carving," Don admired. "Doug will be proud of it."

The other three came in from the terrace. "Why, Yank!" Uncle Brian exclaimed. "A dress shirt? Long pants? *Boots*? Plimsoles, but it's a start. What's the occasion, then?"

"The tux's in the wash," Don replied.

"Well, button your shirt and tuck it in, then," Downings chided. "At least you won't look as slovenly."

"It's encouraging to see that sometimes the President's wishes do get through to you, Yank," Whitlam remarked.

"Although it does take time to get through that thick thatch," Downings added.

"Right. Time to get started, then," Whitlam declared. He removed the work of art to its box. All took their seat and Whitlam turned on the tape recorder. "Today there shall be only one order of business: The satellite's design."

"Oh," Cooke inadvertently exclaimed.

"Yes, William?" Whitlam asked.

"Um, it—it's just that several people have complained that they have problems ordering items from foreign companies," Cooke explained.

"Why can't they pick up the phone, see what they want and order it?" Don asked.

"Why does anyone wish to go off the four islands to make their purchases?" Whitlam wished to know.

"Because, Earle," Downings replied in a slightly condescending tone, "truly modern nations cannot possibly provide all that their people need. Therefore, outside help is necessary. So there you are."

Whitlam mused over what he had just heard. "Oh, very well, William, see what you can do about your slight annoyance.

"Now, Yank, you have the floor."

"Is it yours to give?" Don asked. He produced a drawing. "Gentlemen, this is a little something the Secretary of Tourism did in his spare time."

"Beware the Balfour with spare time," Downings said in mock Tiresiasan tones.

Mackenzie looked at the diagram and asked, "What's it supposed to do, then, Yank?"

"Just announce its existence," Don answered. "It's basically a cassette tape deck, transmitter, antennas, and solar cells. The tape is an endlessly repeating cassette, recording time of twenty minutes."

"Who will construct this contrivance, then?" Cooke asked.

"Mr. Gairy promised to do all the electrical work on the experiment," Whitlam announced.

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"Are you saying someone else knows about this?" the Treasurer demanded.

"Precisely," Whitlam stated matter-of-factly. "He and a few other lodge brothers will do all the fabricating."

"B-b-but suppose someone loosens Mr. Gairy's tongue with strong drink," Bennett protested. Cooke and Mackenzie nodded in agreement.

"Gentlemen, you are amazing," the Foreign Secretary stated. "Your enthusiasm for this project has got in the way of your logic. Consider: First, someone would have to know what Mr. Gairy is doing. Second, to loosen his tongue with strong drink, he would have to be removed from the four islands, presumably by force. And third, if alcohol ever passed the lips of Mr. Gairy, John Wesley would turn over in his grave."

"Look at this in perspective," Don took the baton. "Just suppose nothing happens with this. The islands won't sink, there'll be no famine, the sun won't go dark . . ."

"But it's still of major importance, Yank," Whitlam insisted.

"Y'know, NASA has a program of cooperation with other countries, Canada, the United Kingdom, Australia, West Germany, France, Japan—"

"Yank, that's all very well and good, but will you get on with it, then?" Whitlam demanded.

"So much for international exchanges of wealth," Don muttered. "OK," he addressed the group, "the satellite is designed for an orbit roughly apogee 950 kilometers and perigee 225. That's about the orbit of Sputnik 1, which orbited fifteen times a day and stayed up for three months."

"Three months? Is that all?" Cooke exclaimed. "That's not enough time."

"Plenty of time," Downings calculated. "Three broadcasts the hour, 72 the day, 2,160 in three months. If that's not sufficient . . ." He waved his hand.

Don continued, "The thing will weigh about two kilos and will look like a softball with antennas, four on the equator and one at each pole. It will be launched in a polar orbit, so it will pass over every satellite tracker in the world. It will transmit on the ten-meter band at 29.5 megahertz, a common setting for the OSCAR downlink. Any questions?"

Everyone expressed satisfaction with the concept. The Secretary of Industry received the plans and the President closed the meeting.

Don received accolades all the way to the front door. As Cooke, Mackenzie, and Bennett said their good-byes and left in chauffeured limousines, Don removed his sneaks, shirt, and pants and let them lay where dropped. "You *are* going to leave something on, aren't you, lad?" Uncle Brian asked.

Don thumbed the elastic of his jogging shorts. "Yea, OK, if you think it's proper.

"Hey, Uncle Brian, watch the stuff, OK?" He was off like a shot.

"And to think he will someday be President," Whitlam lamented.

The congregation of the Wesleyan United Methodist Church assembled under the stars and around their living Christmas tree. Don sat down next to Liz. She tried not to notice him. After the opening prayer, he moved closer and she moved away. George indicated no use. The would-be suitor gave the brother a look of frustration and sadly

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rejoined his celebrating family.

"My big brother struck out!" Paul gleefully stage whispered.

"Shut up!" the older brother ordered through clenched teeth.

Momma patted her older son on the leg. He gave her a look of frustration. "Patience," she advised in a whisper. "By the time your momma 'noticed' your poppa, she had to scrape him off the ceiling; he was beyond climbing the walls." He squeezed her hand in thanks.

"Could my fat sister move over?" Don nudged Meg. Her only excess was mammalian, but she still made her you're-gonna-get-it! face and punched her big brother so hard he sprawled on the ground. He welped like a puppy and complained, "My widdle sitter's pickin' on her big brudder."

"The Secretary of Tourism's still not too big to be spanked," Momma stated. Those within earshot tried to suppress their laughter. Don wondered what else would go wrong that night.

After the service ended with a visit from Father Christmas, Don tried to inch his way through the crowded reception toward Liz when he felt a tap on the shoulder. It was Uncle Brian. "The President wishes to see the Cabinet—right now."

"Now?!"

"He has his, um, toy and he wants his friends to play with it."

"Can't it wait?"

"He was even kind enough to send a helicopter for his playmates here on Fragment." They started to work their way out of the crowd. "Are there no barbers in the States, then? Your brother looks worse than you do, which is not easy."

"Hey, Uncle Brian, you talk like the children of your late friend once had short hair."

After a flight that hardly seemed worth the effort, they landed on the helipad on the front lawn of the Manor House. "Yank, Brian, so nice of you to come," Whitlam greeted the two as soon as the whirling blades permitted. "The others are already inside."

The three entered the late-Victorian home. It was decorated in Modern Christmas, with plastic boughs of holly formed into wreaths, draped around the highly-polished teak balustrade and balusters, and, of course, decking the halls. Nativities, angels, choir boys, and Father Christmases graced ledges and tables. Pictures that hung on the wall eleven months of the year were replaced with crayon, pen, or watercolor paintings executed by the Whitlam brood over a span of three generations, some to the acute embarrassment of the elder Whitlam. The tree was live, smelled of pine, and was decorated with family heirlooms made over the years, plus this year's crop of Sunday-school efforts, and popcorn made this afternoon to be eaten by elves tomorrow. Greetings and wishes of peace were displayed draped across arches, down the banister, crowded on tables and ledges, and finally out of desperation placed in specially decorated baskets hanging on the walls. As Don surveyed the only card collection in the four islands larger than his, he marveled at the fact that someone actually took the time to organize the display.

"St. George has two seasons," Whitlam repeated for the millionth time since the first of December, "Christmas

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and the rest of the year."

Most of the Whitlams were in the parlor, singing Christmas carols and partaking of seasonal refreshments. The women were constantly refilling this punch bowl or that cookie tray, while the men were making sure the women had a job to do. Several young couples were more concerned about each other than with the festivities. The little boys were almost unable to contain themselves with all those presents about and more on the way. And the pre-teen girls were all flustered and excited, and girlishly tried to hide behind one another because if their heartthrob in the hallway saw them, they'd just die!

One of the youngest ran up to Don and tried to have him join the fun. "Will my grandson please tell the other guests to come to the President's study?" Whitlam suggested.

"But Yank's here; he's never here when your friends are and he's fun to play with," the child protested.

"Will my grandson tell the other guests to come to the President's study?" Whitlam ordered. The boy disappeared and seconds later returned with his hands full of Cabinet officers. "My grandson is an excellent retriever. He is thanked.

"Right, gentlemen, will you be so kind as to go into the study?"

The private room was decorated in a manner more mature, but no less joyous, than the other parts of the house. With the Cabinet in the study, Whitlam locked the door. He then unlocked the safe and removed what appeared to be another present. "This arrived in the afternoon. If my wife is to have her husband back, he must test it now," he explained. He unwrapped the box and removed the lid. The eyes of Bennett, Cooke, and Mackenzie swelled in size as they lighted upon the reason for their Christmas journey.

"The adoration of the Magi," Uncle Brian muttered to Don.

Whitlam delicately removed the sphere from its packing and placed the machine on a base. He carefully removed the top and extended one antenna and aligned the device according to a compass. "This is to reduce the possibility of any amateur wireless operator eavesdropping. This antenna is directed at Mr. Gairy's house, which, fortunately, is towards the ocean from here."

He went to the safe and removed the cassette. "Yank, you put it on. The President's hands are shaking." Don complied. "Yank, could you stay there in case anything went wrong? Thank you." Whitlam turned on a ham radio tuned to the satellite's frequency. There was nothing but background static, so the President phoned Mr. Gairy and told him to press the button.

The tape started turning. "The people of the republic of St. George send you greetings from Earth orbit," Whitlam's voice proclaimed over the speaker. There was polite applause and utterances of "Well done!" and "Good show!" The six listened until the tape returned to its original spot and the machine stopped.

The phone rang and Whitlam answered. "Yes, Mr. Gairy, it sounded perfect here, too. Thank you very much for your time. Tell the men at your home that they did a splendid job and Happy Christmas to all of them and their families. God bless you all." He hung

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up and declared, "St. George has entered the space age!"

"Then what was Mr. Gairy doing all this time at the ground station?" Don wondered aloud. He removed the tape.

"Put it back, Yank! Put it back!" Whitlam demanded. "The satellite is to be returned and sealed the way it's found. The tape *must* be in place."

Don shrugged and put the cassette on the machine. Then he retracted the antenna and replaced the cover. "Here, catch," he called, faking a pass.

"Yank! No!" four grown men screamed in horror. Downings supressed a giggle. Don gently—*very* gently—handed Whitlam the ball and the President immediately returned it to the container and resealed the box.

Free of possible damage to the satellite, Whitlam was about to read the riot act to Don when Downings spoke up. "Now that the satellite is known to work, everyone can rejoin their families." The other Cabinet men agreed and Don was granted a stay of execution. The six reentered the Whitlam family celebration and the youngest of the walking Whitlams crowded around Don, wishing to play with him.

Don turned to the head of the family. "Mr. Whitlam, you have more relatives here tonight than the Secretary of Tourism's family has ever had. You're a very fortunate man."

Whitlam choked up. "R-right. Th-the helicopter's waiting to r-return you to your f-fam—Fragment."

"Hey, everyone," Don called out, "Happy Christmas and catchyalater." The children had different ideas and tried to influence their friend's decision. "Hey, aren't you all supposed to be having victims of sugarplums dancing in your head?"

"Oh, *no*, Yank," one answered in all seriousness. "On Christmas Eve, all good children get to stay up forever."

"It's still not too late to contact Santa," Don replied.

"But Father Christmas is already on his way here," another of the mob stated authoritatively.

Don became serious. "But he's in constant satellite contact with Mission Control. Mr. Whitlam, where's your phone?" There was a mad scramble to the stairs.

"Yank, you just did something their grandmother has been trying to do for the past two hours," Mrs. Whitlam marveled.

"They always listen to their peers," Don shrugged. "Well, catchyalater and Happy New Year, uh, Easter, uh, you know."

Whitlam walked Don to the copter. "Yank, now you can start work on the rocket."

"Christmas!"

"What?"

"That's the word. Christmas."

"Uh, right, right. Yank, when can you have the rocket missile plans completed, then?"

"Well, um, that is—"

"What, Yank? Out with it!"

"The Secretary of Tourism doesn't know how to design a missile."

"B-b-but that's impossible! You *have* to know! You're a Balfour!" Whitlam thought. "Doesn't NASA have plans available, then?"

"Uh, well . . . yea."

"Right. You're going to America."

"Now?"

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"No, not now. Of course not now. The Assembly has to appropriate your funds first. *You* must go because the fewer who know about this, the better and embassies are notorious for not keeping secrets."

"Mr. Whitlam, isn't doing all this in secret cutting your project off from the wealth of the people and all that?"

"Yank, not now."

"One hundred ten," Whitlam lamented. Downings had been in and out of the shower and was dressing, but the President was still sitting in front of his open locker. "The President has a great many important things on his mind."

"There you are, then," Downings observed. "Next time try concentration. Rumor has it that it does wonders for the game."

"Very funny, Brian. But St. George's future keeps getting in the way of the concentration. No matter. The President shall give up golf."

"What? Earle Whitlam giving up golf? Is Mt. Sword erupting?"

"Brian, the President is divesting himself of all unimportant activities until his plannings are accomplished. All socials, golf, everything but the essentials: the weekly Cabinet meeting, the monthly Assembly meeting, and the plans."

"Earle, that doesn't sound like you. You're giving up your blood of life, your—"

"Your wildly passionate old women," Don interjected.

"Yank, don't creep up on people! It's one of your most annoying habits!" Whitlam slammed his locker door. "Yank! You're supposed to be in America still. In the U.S.A."

"The driver made a wrong turn at Indianapolis." Don was wearing a *maro*, a Tahitian loincloth.

Whitlam pointed to Don's clothing. "Image, lad, image!"

"Yes, image," replied the director of the four island's public relations.

"You look like the member of your native reviews the tourists seem to like so much." Whitlam derided.

"Thank you!" Don beamed.

Whitlam quickly undressed, throwing his clothes angrily on the floor. He grabbed a towel and stormed into the showers.

Don sat down next to Uncle Brian. "This's a South Pacific Commission country, not a brown-skinned member of the Common Market.

"Hey, you know how much play you can get from the 'Hotels in Paradise' hype? Especially the air conditionin' system that uses natural breezes? Energy savin', usin' natural resources, unique design, local flavor, junk like that. There's a long linea editors waitin' to test drive the Dragon Inn when it opens. *That's* the kinda publicity St. George should be gettin'."

"Quite so. But Mr. Whitlam won't see it that way; after all, who gets excited over the hotel's cooling system?

"And speaking of hotels, your mummy was more animated than usual during your absence."

"My little sister kinda asked her best friend to drop in on my momma's days off."

"And your mummy settled the difference between you and Lizabeth, then? That explains it."

"It was settled firsthand—and you

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didn't hear that."

"You *did* go to America, then?"

"Yea. Y'know Lou Barre?"

"The lad who can out-wrestle everyone, save Miss Piggy?"

"Yea, him. He learned the secret of pinnin' my little sister and the first time he beat 'er, he popped the question."

"And has the question been 'popped' to Lizabeth?"

"My little brother's so dumb! Insteada competin' in canoein' in the Olympics, he's gonna compete against his big brother in track. He wants to prove to the world that he's better'n his big brother in somethin'. He's gonna get womped."

"Haole sounds like you when your father was alive."

"Is Mackenzie around?"

"Not today."

"Wanna wait for 'im?"

"He won't be here today. He has problems with several packets in the post which are strangely labeled."

"Hey, wanna tell ghost stories?"

"Whatever for?"

"To see how long Whitlam will stay in the shower to avoid the Secretary of Tourism."

"Yank, the Foreign Secretary has more important things to do."

Downings packed his things and Don went to the pay phone. As the Foreign Secretary was about to leave, Don stopped him. "Hey, uh, Uncle Brian, uh, this thing doesn't have pockets."

Downings made a big deal out of putting his clubs down and reaching into his pocket to extract the correct coin. "Government officials should always have pockets."

"Yea, but when you own forty per centa everything, you kinda don't need pockets."

"Tell it to the pay phone."

After Uncle Brian left, Don placed the call to the post office. He put his hand over the mouthpiece and in a high, nasal voice said, "This is an overseas call for Mr. Wilfrid Mackenzie."

There was some confusion at the other end. Finally, Mackenzie answered. "Yes, yes? What's this, then?"

"This is an overseas call from Pittsburgh, Pennsylvania, to Mr. Wilfrid Mackenzie. Are you Mr. Mackenzie? Will you accept charges?"

"Pittsburgh? Who lives in—oh, it must be Yank. Yes, yes, Operator, the charges shall be accepted at this end."

"Very well. Go ahead, sir." Then in his normal voice, "Hey, Mr. Mackenzie, how's it going?"

"Yank? Yank, is that you? Speak up, lad, the connection's poor."

"What? The connection's poor."

"Speak up!" Mackenzie's shouting made Don's ear ring.

"Hey, Mr. Mackenzie, the Secretary of Tourism sent home some packages, books and stuff like that. Have you received any yet?"

"No, not—um, perhaps. What names were on the packets, then?"

"Impey Barbikkkkkk."

"What was that? There must be some static on the line."

"What? There's static on the line."

"What was the first name?" Mackenzie shouted, as if to eliminate the interference.

"Im-pey Bar-bi-cane."

"Impey Barbicane? Addressed to the Baltimore Gun Club?"

"Yes, that's right. What about Capt.

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Nicholl, J.T. Maston, and Tom Hunter?"

"Yes, yes, all addressed to the Baltimore Gun Club."

"What about Col. Bloomsberry?"

"No, there's nothing here by that name."

"There will be."

"Is this in reference to, um, you know?"

"Yea. The stuff was too much to carry home. You could have guessed the packages' purpose because they were all addressed to American astronauts."

"Mr. Whitlam will be pleased to hear that your trip is so successful."

"The Secretary of Tourism has done more than he set out to do."

"How's the weather there, then?"

"Cold. But beautiful. You've never seen snow, have you? You should sometime. It's really fantastic seeing the snow pile up on the banks of the Susquehanna.

"Hey, time to go. Say hi to everyone there and catch you later." He hung up and pounded the wall. "*Harrisburg's* on the Susquehanna!" He turned and did a Fieldsian take and scream as he almost walked into the President, who was wearing a towel, dripping wet, and steaming hot.

"Yank, must you always play your childish games?"

Don looked contrite for a second, then yelled, "Yea!" as he grabbed Whitlam's towel and ran down the hall.

"Right. Shall the meeting commence, gentlemen?" Whitlam suggested.

All took their seat. Don leaned back in his chair and put his feet on the table. Then he caught himself. He looked around to see if anyone had noticed. They all had.

"The Prestel is working wonderfully," Cooke beamed. "Many people have said how easy it is to order what they want by phone—and how nice it is to see what they want on the screen before ordering."

Whitlam turned on the tape recorder. "Right. This meeting shall come to order. Any discussion not relevant to the design of the rocket machine shall be out of order. Yank, against the President's better judgement, you have the floor."

"Thank you, but the Prestel's a better deal," Don replied. "The first leg of the race from here to Brighton, England, will, uh, wrong plans. The first stop of importance—the floor's not yours to give away." Whitlam pounded the table. "The first stop of importance in America was in Los Angeles, to meet with the International Order of—"

"Save your cover story for the Assembly, Yank," Whitlam ordered. "Get on with the important part, then."

"Those visits weren't important?" Don complained.

"Yank, save your philosophy for your Assembly ramblings," Whitlam insisted. "And get *on* with it!"

Don made a face, but produced three blueprints. "The biggest problem with the launching is how to keep it secret until the satellite's up in orbit. The standard launch is out; there's no place it can be built in secret. Even if that were possible, the noise of the launch would tell everyone something's up."

Whitlam shot up. "Are you saying it's impossible, then?"

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"Yea," Don shrugged.

"There you are, then," Downings replied. "Meeting adjourned?"

"This is the most important thing St. George has ever done and possibly *will ever do*!" Whitlam agonized, pounding the table for emphasis. "And you say it's impossible?"

Don appeared unmoved. "The Secretary of Tourism knows *exactly* how important this project is. And he also remembers when he was a little boy, whenever he got impatient his poppa's friend would pat him on the head and say, 'Patience is a virtue, lad.' "

Whitlam sat down and rubbed his forehead. "Sorry, Yank. You are right. It's just that . . . do you know how insignificant the rest of the world thinks the four islands are?"

"Yea. Who spent four years trying to convince his college friends he didn't live in a bottle of aspirin made for children?" Don retorted.

"Yes, uh, yes, no doubt you did," Bennett observed. "But if the launching is impossible, as you say, why did you make these drawings, then?"

"Who said it was impossible?" Don replied. "Just the conventional way. There's all kinds of ways to launch a missile. But under the circumstances, only one acceptable way." Cooke, Bennett, and Mackenzie were as expectant as Dr. Watson waiting for Sherlock Holmes to reveal the malefactor. Downings listened to his stomach rumble. As the pause grew longer, Whitlam's temper grew shorter. "Shoot the missile from a cannon."

"Yank, be serious!" Whitlam demanded. Downings looked askance at the young man. The others did not know whether to believe him or not.

"Shoot the missile from a cannon," Don repeated in even tones.

"That's something out of Jules Verne, isn't it?" Cooke asked.

"Not quite," Don replied. "The total thrust of the *Columbia* was supplied solely by cannon, but this plan calls for the cannon to serve only as the initial thrust. The missile can be made one tenth the size—and complexity of a conventional one because the first stage is actually the cannon attached to the ground. Also, the launch site can be disguised as something else, so that it can be built in plain sight.

"The U.S. Army tested this sort of thing back in the mid 60's. They took a small rocket that could only go about 24 kilometers up and fired it from a field gun. The missile reached a height of over 200 kilometers. It was just a sounding rocket, but the payload was about six times what this one will be."

"Such a cannon as you propose would require a large quantity of gunpowder," Downings surmised.

Don smiled. "Not gunpowder. Steam. Heated by Mt. Sword. This cannon will be built on, and to an extent in, the mountain." He unrolled the first blueprint. "To be done properly, pure water must be used. The cheapest and easiest way is to build a solar still. Sea water is pumped into the evaporation pool in the center. The water evaporates, then condenses on the top, which is curved. The water droplets roll down the sides, collect in trays, and are then pumped to storage vats. The residue can be sifted through for anything valuable; salt, magnesium, water buffaloes, whatever.

"Incidentally, the pumps will be so-

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lar powered as well, with solar charged batteries for use at night or when it's raining."

"That's a bit much water, isn't it, Yank?" Bennett asked.

"Ah!" Don beamed. "The solar still will be made large on purpose, so that it can supply not only a continuous supply of pure water to the launch site, but also meet the needs of present, as well as future, domestic, industrial, and commercial buildings on the four islands."

"What's wrong with tapping the streams, then?" Cooke demanded.

"Why don't you ask the streams?" Don suggested.

"Right! Right! Talk to the streams! That's something a Balfour would do," Cooke protested. "Talk to the streams! Indeed!"

"You're right. It is," Don agreed. "The Secretary of Tourism checked out a few streams on Tapu, as well as here, after he received several complaints from tour guides that the streams were stagnant and dying. He found that the streams being destroyed were the ones being tapped, and only below the intakes. If it wasn't for the daily rains the problem would be a lot worse."

"Yank, will you get *on* with it!" Whitlam demanded.

"That was just to show that even if the missile fizzled completely the Cabinet could still justify the expense."

Whitlam nodded in tacit agreement.

Don let the first blueprint roll up as he opened the second. "The water from the tanks will be pumped into Mt. Sword through this first pipe. Not all the way to the conduit, just far enough into the side until a temperature of 1,400 degrees is reached. The water hits the heat exchanger and instantly changes into superheated steam. The steam expands explosively and rushes out the second pipe. Outside, the second pipe bends up the side of the mountain. The missile will be inside the second pipe.

"The hole will be drilled by laser. Soundings will be taken every decimeter or so to see if there's something hidden that might cause problems, such as a hidden pocket of gas. Also, the debris will be cleared away and the temperature taken. And the sides will be shored up if necessary."

Don let the second blueprint roll itself up as he unrolled the final drawing. "This is the missile. It'll weigh eighty kilos, including the base. The steam will push up against the base and shoot the missile high into the atmosphere. Then, when forward momentum starts to slow, the base will fall off, revealing the rocket nozzle. The rocket will fire and continue until reaching the orbital window. Once in orbit, the nose cone will separate, the satellite will be expelled, its antennas deployed and it will start broadcasting automatically."

"And the Republic of St. George will receive its just recognition," Whitlam declared.

"One thing further, gentlemen," Don continued. "Jules Verne was mentioned earlier. One of his lesser-known works is *The Hunt for the Meteor*, in which a small asteroid gets trapped in Earth orbit. According to NORAD, every once in a while there's an object or two in Earth orbit that can't be accounted for and the assumption is that the things are trapped meeteors *à la* Monsieur Verne. Since these things are

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in orbit temporarily and since they're no problem—to space navigation or national security—they're ignored. So, it's either get the tape started or have the satellite ignored by those in the know."

"The satellite could be turned on from the ground," the President muttered.

"Yea, if you knew where it was," Don answered. "Of course you have to know where it is to try, and how are you going to ask NORAD without looking suspicious? Of course, you can also guess, but that could be the most frustrating possibility of all.

"The launch site will be on the northwest side of Sword. Fortunately, it's somewhat isolated, so there's not so many curious people around."

"The rocket flying over most of the four islands isn't that good an idea," Whitlam thought aloud.

"The missile won't come crashing down through anyone's roof; simple ballistics," Downings declared flatly.

"Uncle, uh, Mr. Downings is right," Don continued. "The reason why the missile has to be launched towards the southeast is simple orbital mechanics. When the satellite's launched in the direction of the Earth's rotation it gets an additional push at launch from the Earth itself."

"But construction on Mt. Sword will be extremely obvious," Whitlam protested. "Surely you could come up with something more secret, then, Yank?"

"The existence of construction can't be hidden, but its purpose can. If anyone asks, the reason for construction will be that a monitoring device is being implanted inside the volcano."

"There's already a monitoring device on Mt. Sword," Downings stated matter-of-factly.

"Yea," Don agreed. "On top of the mountain, on the surface. This monitor will be installed deep inside. And a monitor *will* be needed to discover any unexpected happenings inside the mountain, so there will be some truth to the story."

"And any difference between the two monitors could prove important to vulcanologists!" Cooke exclaimed.

"That's right," Don confirmed. "As for the launch itself, it can be made at night, when no one's looking. And since the rocket won't start until it's distant from the Earth, no one will hear it and be alarmed."

"This is all over the Secretary of the Treasury's head," Mackenzie stated in unintentional irony.

"Yank has properly amazed everyone with his contrivances," Downings observed, wondering what the lad was actually up to.

"Right, there you are, then, gentlemen," Whitlam announced proudly. "The construction will commence as soon as the Assembly has approved the expenses."

"C-can't it wait until the hotels are c-completed?" Don stammered.

"No," Whitlam declared firmly. "The sooner the machine's up there, the better. Sorry, Yank, but your hotels will have to wait, then."

"Not even Dragon? It's almost done," Don pleaded.

"The satellite has priority over everything else," Whitlam stated.

"Will this thing have any fuel, then?" Downings asked.

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"Oh, yea, sorry," Don remembered. "Solid fuel. It's easier to make and store without anyone knowing any better and, with the instant acceleration, liquid fuel would throw the missile to pieces, which would ruin the fun. And since it's time to order fireworks for the Discovery/Independence Days, several more rocket bombs, or whatever's the cheapest, could be ordered."

"How much powder will you need, then, Yank?" Mackenzie asked.

"Thirty-two kilos," Don replied. "The power of the steam will be determined experimentally—the missile's design has certain gauges so that the missile can be used as a piston to measure the steam's potential. Well, gentlemen—to be presumptuous—that's it." Don rolled up the plans and gave them to Cooke.

"Right. There being no further business, then, meeting adjurned," Whitlam declared, turning off the tape machine.

After all but Don and Uncle Brian left, the elder asked the younger, "Just between you, your late father's best friend, and your shaggy mane, you're not *seriously* allowing Mr. Whitlam to get away with all his falderal, are you, Yank?"

"Hey, Uncle Brian, you don't know this, but when alla this started, Whitlam made the Secretary of Tourism swear on the Bible that to the besta the designer's ability he would draw a missile that could be successfully built and launched in secret and a satellite that would broadcast to all who'd listen. There's no way outa it."

"Then all is lost! Heaven help the four islands!"

"Hey, Uncle Brian, go play a couplea rounds of golf, have a nice lunch—don't forget you're eatin' for two—and remember that the project is under the complete control of my momma's oldest and smartest son."

"Then Heaven help the world!" He dramatically exited.

Don ran to the airport, stopping long enough at his office to change. The airport was empty, save for employees. Liz, casually chatting with another greeter, suddenly found herself being molested. The next thing Don knew was that he was sprawled on the floor in a very ungraceful manner. "That was fun! Do it again!" He got up to give her the chance.

"Donald! Not now. The passengers are arriving," Liz warned through clenched teeth.

"Oh, all right," the boyfriend replied, rejected. "Anyway, it's time to updataize the computer." He walked away as he straightened his t-shirt in mock dignity. On his shirt was delineated a crying dragon sitting on his haunches and saying, 'It's no fun steaming when all the friends are leaving.'

"It was bad enough for you to act like you had Balfour blood to capture the Balfour," the companion mentioned, "but now you must act contrary to your nature to keep him."

"How do you mean?" Liz asked.

"The Balfours do have their violent streak and you are so gentle."

"But you forget who's Meg's closest friend. And the reason can't be solely because Meg enjoys her friend's flower arrangements."

As the two greeters were talking, Don wandered up to the first pair of tourists

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and took their bags as he slipped into his idiot-native persona. "You go? No go! No go! Stay! Stay!"

The Cabinet was waiting outside the TV studio, in the station's hallway. The men in suits were chatting among themselves. The lone figure in an unbuttoned dress shirt and cutoffs had his face pressed against the studio window, watching Miss Nancy, Science Teacher, going through her instructions.

Earle Whitlam entered the station and showed his old, exuberant self. "Gentlemen, the day draws nigh! Tomorrow at midnight St. George enters the space age!"

Don whirled around, leaving his faceprint on the window. "But what about the hotel? It's not ready yet!"

"Yank, there will be enough time for your hotels," Whitlam almost sneered.

"Hey, Mr. Whitlam . . ." Don started.

"Not now, Yank, not now," Whitlam brushed aside.

"Why not now?" Don protested. "You've been saying 'not now' since Christmas; it's now May."

"Yank, it can wait until after the launching," Whitlam insisted. "Now button your shirt and tuck it in. You look slovenly. You must present the good image for visitors when they come to inspect the launching site."

"And where will they sleep?" Don asked rhetorically.

The director signaled time and Miss Nancy signed off. The lights went off and the cameraman opened the studio door. Whitlam and the Cabinet entered. As the other guests took their seats, Don helped the studio crew convert the classroom into a meeting room.

After all was in readiness, the director pointed, the tape started turning, the red camera light went on, the theme music rose and faded, and program host Robert King greeted, "Good evening and welcome to 'St. George This Week.' Tonight is a special treat as it is the third annual Report to the People, where Mr. Whitlam and the Cabinet give highlights of the reports they shall submit to the Assembly next monday, the day before the elections and the end of the fiscal year. Also, Mr. Mackenzie and Mr. Whitlam shall state why they should be elected to their first full term."

Mr. King introduced each visitor, making sure to wish Whitlam good health without mentioning the rumors of his illness, and giving Don a perfunctory dig. After each guest gave his report, Mackenzie gave his typically dull campaign speech. Whitlam then gave his only campaign speech to date, so lackluster and detached that Don thought the President was sitting for office instead of standing. The show ended with King again giving Don a dig and wishing Whitlam good health.

As the six were leaving, Whitlam more than suggested to Don, "Yank, if you're not doing anything now, come around to the Manor House."

A few minutes later, Don stood out of breath at the front door of the Whitlam estate. He barely had time to put his shirt back on when Mr. Whitlam himself opened the door. The President ushered Don inside and patted the young man on the back as they went into the private study.

On the desk was a thick portfolio. Whitlam put both hands on the folder

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and beamed proudly, yet contentedly, "Yank, in here is the future of St. George, a planned future, a future built on tomorrow's launching." He opened the folder and gingerly took out the sketches. "These drawings aren't as good as yours, but they convey the basic idea. It's the fruit of three months of intensive labor."

Don could not believe his eyes as he looked at pictures of satellites, manned spacecraft, missile designs, a space station, and a lunar colony. "What *is* all this?" he asked, afraid he already knew the answer.

"This is St. George's space program! *This* is what the major powers, both East and West, understand. It's an area of non-violent competition, a place where St. George can make a name for itself."

"How well have you thought this through?"

"Don't worry, lad, this is all built on sound NASA data."

"So it's just a carbon copy of America's program? What good is it?"

"*What good is it*? Yank, you *can't* be serious!"

"This is the American concept, based on their ability to implement it. St. George has neither the materials nor the manpower to *pretend* to duplicate the effort."

"Yank, your father—*your father*—in his Will to the People wrote, 'Strive for the impossible, aim for the stars, let your reach exceed your grasp; only then can you truly grow.' Yank, you don't even follow your own father's advice."

"But 'aim for the stars' wasn't meant literally—"

"Yank, this is progress! *Progress*!"

"But it's not. Maybe 25 years ago, but not today. If St. George launched its own satellite, the American press would bury the news on page 34, next to an ad for frozen egg roll."

"They'd give it more coverage than that."

"Not really. About the only reaction you'd get would be from certain paranoid powers who'd think, 'If St. George can throw things into orbit, they can throw things in this direction'."

"Yank, you're very disappointing. The President thought of all the members of the Assembly—everyone in the four islands—*you* would be the most responsive to these ideas. But you spurn them. *Spurn them*!"

"Mr. Whitlam, you can't impress the big boys no matter what you do; you're not in their league. Be realistic and forget them."

"Be realistic. Realistic? That's good. That's jolly good! You tell the President to be realistic! You've not had a realistic idea in the three years since Independence. Plenty of half-baked schemes, ludicrous suggestions, but nothing of value."

"You want a valuable suggestion? Forget this stuff—"

"You insolent—"

"Remember the parable of the talents?"

"Now you listen to an adult and you hear this well: The four islands have never been content to be just the palm trees and pretty faces you pretend it to be in your adverts."

"Mr. Whitlam—"

"St. George has always been the dynamic, moving force in this sector of the globe and shall continue to be, despite your every effort to the contrary.

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And the space program will not change the country one whit."

"It won't? It's already changed you."

"Not at all."

"No? Then why haven't you attended any garden parties lately, any teas? Why is it you've canceled your tours of the work areas? You used to be highly visible—ubiquitous—and everyone loved you for it."

"Poppycock. The President has better things to do than chat with Mrs. Coopersmith about her child's first tooth."

"But that used to be your bread-and-butter. What was important to the person you met, no matter how trivial, was important to you.

"But despite your change, you're still like a father to everyone. A father all too common in the Industrialized Nations. A father who wants the best for his children; so he works nights, Sundays, holidays, too hard, too long. His children have everything money can buy, but they still don't have everything because the father is denying them the things they need most: his love, his presence, his guidance. His misguided affection for his kids has him trying to buy his love when he can easily give it away.

"This space program of yours could never possibly replace the love and care that you've denied your family."

"Enough! You despise the President, comdemn every fiber in his being. Personal attacks can be tolerated—they have been for years—but when you try to prevent the future St. George so richly deserves, you are going too far.

"You are dismissed as Secretary of Tourism! Good day!"

Don's jaw slowly dropped. The truth sank in and he set his jaw as disbelief turned to anger. "All right! Fire whoever you want to. But just remember that no matter what you do, no matter how you try to subvert the life-style of the four islands, there will always be *one* person who will speak 'the language'." He turned and noisily exited, slamming the doors behind him as hard as he could.

Don was angry, hurt, and frustrated. But he was also relieved because he would not be battling Whitlam and most of the Cabinet for at least a few days. The announcement of firing would be made at the Assembly meeting, but not before, since leaks are improper. Walking home, Don mulled over various possibilities of the country's reactions to the announcement and how it would affect the election and Whitlam's term of office. The prospects ranged from bleak to disasterous.

Finding himself in his apartment, Don removed his clothing, one article at a time, and violently threw each item against the wall. He continued his action with a pile of dirty clothes. He was looking around for other things to throw when the phone rang. "Yea?" he grunted.

"Donald, where are you?" It was Liz.

"The Cincinnati Zoo."

"Have you forgotten our luncheon date?"

"Mmnn. OK, wait up." He hung up and sat down. Had he not been getting hungry, he would have thought up an excuse to avoid her and the rest of the world. He sighed, shrugged, got up, and walked out the door.

After putting on his *maro*—halfway

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down the hall he realized he was still naked—Don trudged most unenthusiastically to the hotel lobby. He saw Liz and suddenly the clouds parted, the sun shown brightly, birds started singing, and life was worth living again. "Donald, where have you been?" she asked anxiously. They kissed. They kissed again. And again. "Donald, do you feel all right?"

"Uh, kinda like Joe DiMaggio after that fifty-seventh game."

"What?"

"But he started another streak the next day."

"Donald, you never make any sense." She grabbed his arm and almost dragged him into the restaurant and into his mother's waiting arms.

Momma took her son aside. "What is troubling my son?"

"He's just been fired."

She bit her lip. "Your poppa thought this would happen."

"He did?"

"He grew up with Mr. Whitlam and knew how to handle him. But your poppa said that after Mr. Whitlam gives his report of the firing—" She covered her open mouth with her hands. "No one will vote for him! They'll think it's the irrational action of a man too sick to govern! Oh, the poor man! To be discarded while still so useful! For one ill-timed action!"

Don put his hands on her shoulders. "Whitlam will come to his senses in thirty-seven hours and by then he'll be as popular as ever."

Momma slid her hands from her face. "Is my son playing with fire?"

"Yea, with asbestos gloves."

They returned to Liz. "The usual," he ordered and folded his menu.

"Donald, don't you *ever* get tired of hamburgers, french fries, and Cokes?" Liz wondered.

By this time Momma was scolding two retired scientists who were more interested in a letter to *Science* than in their meals. "Madam," one of the warhorses protested, "you obviously know nothing of the importance of the Unified Field Theory."

Momma sat down and started spearing peas. "How can you discover if electricity and gravity are one and the same if you're faint from hunger? Eat!" She mothered them until they had both cleaned their plates.

Don slowly opened his eyes and quickly shut them again. But already sleep was receding into the dim corridors of his mind. He had been fired as Secretary of Tourism. That remembrance woke him irrevocably for the day. He climbed off his sleeping mat, folded it up, and slid it under the drafting table where every Balfour for the past century had spent his "spare time."

After a peek out the window for a time and weather check, Don took his time leisurely reading a complete article from *Scientific American* and luxuriating in an unhurried shower. He air dried because his towels could almost walk home; he still had two clean shirts so washing was out of the question. Breakfast consisted of consuming whatever fruits were at hand and half a *Mad* magazine.

It being impolitic to be seen at his office, he called his secretary. "My secretary should be sitting down because she's about to get her work orders for

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the day. There's much to do."

"Your secretary's busy right now. Could the caller try again, about a year from next Wednesday?"

"My cousin has to stop whatever she's doin' and prepare special tourist packets."

"And what is the reason this time and when will they cancel?"

"St. George is gonna be invaded by Tibetan tap dancers. There's 800 packets now, so make up 200 more. And stuff alla them with the reports from the President and the Cabinet."

"In addition to the reports to UNESCO concerning waste recycling and resettlements of foreign animals and plants?"

"Yea, and don't seal 'em 'cause there's more on the way."

"Does my boss know his secretary's very busy?"

"Maybe. Hum a few bars."

"What if there's not enough pamphlets?"

"There are."

"There would be. And whom did my idiot cousin say was coming?"

"A convention of penguin-suit makers."

"One thousand?"

"Give or take a zipper."

"Will the slave driver of a boss help with the work?"

"Uh, no. He died yesterday. Oh, make up a couplea hundred extra leis for tomorrow morning catchyalater." He hung up as he was speaking so there could be no rebuttal.

He cleaned the pile of dirty clothes off his record player and put on his headphones and Holst's *The Planets*, as interpreted by Isao Tomita. As the music electronically blasted off inside his head, Don started making secret arrangements for the invasion of reporters. His computer terminal made the chore easy, but that took all the fun out of it. About an hour later, as the music-box effect was tinkling in his head, he decided that any problem not anticipated was unimportant. Then he completed the *Time* he was working on, an issue at least six weeks old, reading to Respighi's *The Pines of Rome* and Ravel's *Bolero*.

When he left for lunch he again realized that he was unclothed. Liz would be at the obstetrician with her mother—Mrs. Scott's fourth—but word would get back to her. It took a full minute, but Don decided to cover what his culture dictated should not be seen in public. It was not Liz's influence, he told himself. No, he could be naked in public if he wanted and Liz would have to like it, he insisted to himself. But if he wore something he would do a favor for all his male friends by not giving them a chance to break the Tenth Commandment, he modestly rationalized.

In the restaurant, his momma asked her son, "When may the customers of St. George's processed foods start complaining about the freshness and taste? The letters your momma has written are starting to yellow with age."

"Your youngest son hasn't yet perfected his processer," he replied.

"And when will that be, at the rate he's going?"

"He's too busy tryin' to be the Wildest Man on Campus. He claims he's outwildin' his big brother, but nowadays bein' WMOC is about as hard as goin' east on an eastbound jet. But back when his big brother was settin' the

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pace, competition was—''

''My youngest child will never graduate.''

''Like your oldest son didn't and your daughter won't.''

After lunch, Don was sitting on the backrest of a park bench, deciding what to do. Liz was probably still busy and he was still depressed enough from the firing to not feel like training. But not depressed enough to not try to repopularize the male custom of wearing a flower over the ear.

He looked about and pondered the situation. Tourists were still enjoying their visits and citizens still reguarded him as their friend. He was still the head of his family and still had a voice in most of the four island's productivity. And he was still in the Assembly.

The islands were not sinking, there was no famine, the sun was not going dark. So what had changed? Really?

''Oh, Yank. How is Mr. Whitlam, then?'' a friend asked. ''He looked a bit pale on the telly last night.''

''He's OK, Ian,'' Don replied. ''It's just that when you don't circulate for a couplea months, the English in you rises to the surface.''

''Then there's no problem? That *is* good news.

''Oh, Yank, some night when you and young Miss Scott aren't busy, would you two be so kind as to grace my wife's table and partake of her delicacies? She has a recipe acquired from the Hotel that's absolutely fabulous! A pie made with dough, tomato sauce, spices, and cheese. Sometimes she experiments with mushrooms, or fish. You must try it sometime.''

''Yea, thanks.'' The two waved goodbye and Ian left.

The birds serenaded Don from the trees. Winds rustled the palms and carried the sounds of the swimmers enjoying themselves in Sanctuary Harbor. From the other end of the park came the beginning strains of this afternoon's concert, Coates' *London Suite* topping the bill. From the other direction, near the Hotel, came a very impromptu-sounding mixture of electronically amplified rock and island music. No doubt some Hotel workers had once again decided that they had more important things to do than work. Don was about to get his guitar and join the jam session when he realized that the instrument was not in his apartment, nor was it at home, come to think of it. That little brother!

''Ah, Yank, there you are, then.'' It was Uncle Brian. Don's face lit up as his mentor sat down in the conventional manner. ''Are you punishing your office employees? They are quite upset. Indeed, they all swear they shall quit after they finished your assignment.''

''*After* the assignment's done? Maybe bein' crazy's contagious.''

''Yank, one thing you are not is crazy. You approach problems with a rear attack and you are incurably esoteric, but you are not crazy.''

''Yea? You wanna be sued for defamation of character? Oh, uh, your fly's up.''

''What? oh, thank . . . Yank, do you wish to be deported for not speaking 'the language'?''

''Hey, Yank, how's it going, then?'' a friend interrupted. ''Hello, Mr. Mackenzie.

''Yank, is Mr. Whitlam all right? He

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looked a bit dark on the telly last night, as if flushed."

"He's OK, Jim," the benchback-sitter answered. "It's just that after not circulatin' for a while, the Polynesian in you rises to the surface."

"Then there is no longer any problem?" Jim sighed. "That *is* good news.

"Your nice thank-you note was greatly appreciated, and if you see young Miss Scott, thank her for also sending one. And don't forget that just because you sat at my wife's table once doesn't excuse you from the return engagement.

"Good-bye, Mr. Mackenzie. Catch you later, then, Yank."

The two on the bench watched Jim leave. "The Foreign Secretary hasn't been mistaken for Mr. Mackenzie in some time," Uncle Brian chuckled. "Right, to completely change the subject: Yank, will tonight's events go as planned?"

"They gotta. The Dragon's been steamin' all day. *He's* very anxious for it to happen, and when *he* wants it done, then done it . . .*do* it."

"Yank, next month Miss Piggy will start ordering the materials for her continental shelves and undersea farms. Every letter from Haole boasts he's about to set the processed-goods industry on its ear with his new process. If either one makes their plans public before you present your idea, whatever it may be, then they would never let you forget it."

"There's Shelley's Shell Shop."

"Yes, giving Mr. Shelley management of that souvenir store did give his life meaning again after the shark attack made him the burden to his family and, yes, the store was your way of insuring the Asssembly wouldn't again turn down your request of cleaning the beaches for the tourists, and, yes, the stores are so successful now they employ other than the handicapped and even with objects from Balfour Bay there's not enough debris to decorate into knick-knacks. But for someone of your . . . your . . . " Genius? Family Position? Eccentricity? "It wouldn't compare to Miss Piggy and Haole."

"There's the Prestel."

"No, there's not; your mummy would never let you take her credit.

"Yank, was it an act of desperation that made you invest the standard Balfour-40% in this project, something that will bring no financial return? Or is it—"

"Hey, Yank, how's it going?" a recently-married couple chimed in unison.

"Yank," the groom asked, "how is Mr. Whitlam, then? Last night on the telly he looked the bit green."

"When you don't circulate for a couplea months, your TV gets outa adjustment," Don replied.

"Then he's all right? That *is* good news," the bride replied. The groom grabbed her by the arm and they ran off happily waving and laughing.

"Yank, the meeting with Mr. Li of Brunei was cancelled. He was very puzzled at the cancellation, especially since he was willing to sell his country's oil at below-OPEC prices. But the revocation wasn't instituted on this end. The last time you threw the spanner into the cogs of international commerce—"

"Never."

"—the fertilizer deal was off and several days later Mr. Bennett sug-

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gested importing American earthworms and feeding them organic wastes. Have you a similar idea up your sleeve— figuratively speaking, that is?''

''Feed earthworms satellites?''

''Hey, Yank, how's it going, then?'' Randolph Scott asked as he ran up to his friend and climbed the bench. ''H'lo Mr. Downings.

''Hey, Yank, could you tell your Sunday school pupil funny stories 'bout the planet you were on that's colder'n the freezer and the rain looks like volcanic ash?''

''It's not another planet, just another part of God's Earth,'' the teacher explained. ''And next Sunday you'll hear 'bout trees that have leaves that turn different colors and fall off . . . all at once, kinda.''

''What planet was this?'' Randy asked, his eyes wide.

''Oh, Yank, there you are, then,'' Randy's big brother George recognized. ''Not exercising, eh? Have you conceded Haole all your gold medals, then?''

''My little brother's conceded enough,'' Don replied gruffly.

''It wouldn't do to have the President perform poorly at the Games,'' George mused.

''Whitlam's not goin' to L.A.,'' Don replied, puzzled.

''Not Mr. Whitlam, *you*, you fool!'' George exclaimed. ''The rumors of illness are too persistent to be dismissed.''

''Oh! *That's* what everyone's been talkin' about!'' Don realized. ''Forget it; he's not sick.''

''That's a relief,'' George sighed. ''But what of the rumors, then?''

''Stuff 'em with kumquats,'' the Fieldsian imitator replied.

''My love struck sister talked her mum into making lasagna,'' George changed the subject.

Don's eyes lit up. ''Oh, hey, Uncle Brian, that means Liz's got the hots for her boyfriend. And since he's got the hots for Mrs. Scott's lasa—daughter—uh, y'know.''

''Very well, then,'' Uncle Brian sighed. ''Talking to you in public is like trying to catch paper in the wind.''

Randy jumped off the bench. ''G'd-bye Mr. Downings, catch you later, Yank!'' He was off before he could be reprimanded for his speech.

Don jumped off the bench and slapped Uncle Brian on the stomach. ''Hey, that thing bounces like a bowl fulla jelly. Where were you last Christmas Eve? Catchyalater.''

''Later tonight?'' asked Uncle Brian, who had been invited to Whitlam's celebration party.

''Course,'' Don replied, unaware of the party.

''Gin!'' George announced triumphantly, laying down his cards.

Don tossed his pasteboards on the table. ''The way your friend's luck's been goin' tonight, the Dragon's probably *inhaling* steam.'' He stood up and announced, ''Gottago.''

''Donald, must you leave so soon?'' Liz softly protested. ''The telly hasn't reached the off. You never leave before then.''

''There's still lemonade,'' the mother offered.

''My grandson will give you more ice cream,'' the grandmother ordered. ''You need not be so polite as to leave

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without saying you're not being treated well."

"No, really. Your guest hasta leave 'cause he's gotta be somewhere else sorta soon," Don insisted.

Liz's aunt arose from her rocker, careful not to awaken her baby. Don kissed her good night. "Take carea Tiger," he said, looking at the sleeping bundle of love. She bid Don good night and left to put her son to bed.

Don kissed Liz's mother on the cheek. "Good night, Mrs. Scott. That lasagna was really fantastic."

Liz's mother did not look up from her knitting. "My daughter made the dinner tonight. *She* is the cook in the family."

Don put his hands around his mouth and shouted into Mrs. Scott's stomach. "Hey, you in there! Paper Towel! Good night. What's that?" He put his ear to the mother's navel, then looked up at her. "Paper Towel says he liked your lasagna, too." Mrs. Scott put her hand on Don's face and pushed him away.

"Good night, Mrs. Scott," Don said as he kissed Liz's grandmother on the cheek. "You really know how to pick out good food."

She looked up from her reading. "My *granddaughter* made the selections of food, Yank. Someday you will learn to appreciate her and make her your wife."

Don tactfully backed away. He turned and almost walked into the men of the family. Liz's grandfather, uncle, father, and brother were standing in a line, arms folded, and wearing frowns. "Great galloping horsemen!" Don exclaimed as W.C. Fields. "You look like the Green Bay front four!"

"Yank, it's time for a man-to-man talk" Liz's father stated. The other men solemnly nodded.

"Hey, uh, can it wait? Your guest really hasta go," Don replied.

"Mr. Downings can wait, Yank," George insisted.

"Is it OK to say good night to Liz first?" Don suggested.

"Very well," the elder Scott agreed. "But no wrestling!"

The lovers went into the dark kitchen. They embraced and kissed as if never to meet again.

"Oh, Donald . . ." she sighed.

He removed his college ring and gave it to her. "Donald, does this mean . . .?" she asked as she took the ring.

"It means kinda sorta, but not really." They embraced and kissed again. "Wear it on a chain 'round your neck."

"Donald, how—"

"It also means start practicin' not usin' that name."

"How does my almost-fiancé think up these things?"

"He stays awake nights."

"Yank!" a stern grandfather barked, "are you in a hurry?"

Don tried to climb out the window, but Liz thought it best for him to face her family. The four Scott men conducted Don outside. "Does the condemned man have a last request?" the Fieldsian character asked. "A month in Paris? Two weeks in Philadelphia will do."

"Yank, you have known my granddaughter since her birth," the head of the clan stated. "And you have been courting her, one could say, since she was three. When will you marry her?"

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"Hey, look, your guest has really *must gotta go*!" Don looked nervously at the volcano.

"It's Mt. Sword, then, isn't it, Yank?" George asked.

"What? No! No, it's not! Whydoya think so?" Don denied nervously.

"It's about to erupt and you wish to be at the controls of the deactivator to pump huge quantities of water onto the lava to cool it off," George explained. "Everyone knows about it."

"Where'dja get *that* idea?" Don puzzled.

"Paul's letter," George explained.

Paul faithfully reported the story his brother had sworn him not to reveal.

"That little troublemaker!" Don spat. "He's gonna get an early eclipse when he gets home! That's the stupidest—it would make another Krakatoa! Catch-yalater!"

He ran like Mercury to his boat. After several minutes roaring over the water, Don cut the motor and waited. The bend of the Milky Way was so bright Don felt any self-respecting planetarium should crawl under its dome and hide in shame. The water lightly lapping against the hull was the only noise.

He waited. A line from his favorite hymn ran through his head. "There are the stars, there is the rolling thunder . . ."

Suddenly his reverie was pierced by a sound like a bullet big and distant. He stopped breathing as he saw it fore and port, a moving shape darker than the background. Then he heard a sound like thunder in the distance. It was the report of the cannon echoing over the still water. A star appeared near Alpha Pavonis, only 235 light-years closer to Earth. The missile would probably continue firing until it reached orbital altitude, the designer felt, and there was little doubt that within not too many more minutes the satellite would be orbiting and broadcasting, proof that St. George could conceive, build, and launch a satellite and missile as successfully as the big boys.

The last time Don felt so personally and patriotically proud was that night almost three years ago when the Union Jack was lowered and the Cross of St. George raised.

Don watched the sky even after the flame had disappeared. He would have spent the night lost in the stars were it not for the anxious shouts of confusion coming from the land. He started the motor and raced off at full throttle. He beached at Chatham and was off running.

The streets were congested with people asking each other if the reports from Tapu were true. The conspirator tried to take a surreptitious route by way of the darker streets, but there were too many people about and he was in too much of a hurry to try to disappear into the crowd, a trick he was never able to master even under the best conditions. Like moths, the nervous citizens were attracted to the light of Don's knowledge. "Hey, alla ya! Go home and hang around the TV!" he repeatedly shouted as he barged through the crowds.

At the gates of the Manor House a group of people were undecided as to whether or not to trouble Mr. Whitlam, so they were praying for guidance. Their prayers were interrupted by a muffled exclamation of pain. Don had managed to sneak past the group and

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climb the fence, but he landed barefoot on the gravel driveway. He sent the cluster home to the TV.

Inside, the Whitlam grandchildren were complaining that the people outside were making too much noise. One of Whitlam's daughters-in-law was trying to convince the youngsters that it was only some of Yank's friends and that it was past their bedtime.

Downings stood on the porch, trying to get some fresh air and make sense of the afternoon's conversation with Don in light of tonight's event. He saw a figure running toward him. "Ah, Yank, there you are, then. You've finally managed to break away from your lady friend long enough to receive your accolades, eh?"

"Later," Don shouted, not breaking stride. He burst into the House and high jumped several of the smaller Whitlams, much to their delight.

"Yank! This party is only for Cabinet officers!" Whitlam shouted in a rage. Only Uncle Brian caught the meaning of the cry, and it surprised him.

"They're panicking in the streets!" Don yelled. "Everyone thinks Sword's about to erupt!" The children were excited. Three Cabinet members and all the women were confused and a bit apprehensive. Downings allowed a slight smile as he realized he was witnessing something a Balfour not only would do but could do, and perhaps only once a century at that.

"Mt. Sword erupting? Preposterous!" Whitlam dismissed.

"Well, you tell everyone that!" Don shouted back.

"B-b-but there's been no announcement of discovery yet," the President protested. "Tomorrow."

"But they're panicking *now*!" Don insisted. "Look, what would you think if there was an Earth-shaking explosion and a hot something rained down on you? Huh? What would you think? You *must* go on the air and tell them something. *Anything*! But if you don't, by the time St. George is famous, everyone will be on a boat back to Nui."

"Oh, very well," Whitlam snorted.

"The chauffeur is waiting," Mrs. Whitlam announced.

"Hey, thanks, Mrs. Whitlam." Don grabbed the President and dragged him out the door. "Oh, hey, call the station and sound the siren," the abductor called over his shoulder. He almost pushed Whitlam into the back seat and the limousine was off before the door could be closed. Don opened the back seat secretary and started writing.

"Why didn't you know about this?" Whitlam demanded. "Why didn't you know about the noise and how the people would react, then?"

"Hey, it was just overlooked," Don lied.

Somehow the driver, one hand on the wheel and the other on the horn, managed to navigate around the population of Chatham without incident. As the car pulled over to the curb in front of the station, Don handed Whitlam the speech. The President read it and crumpled the paper and threw it on the floor. "Unacceptable!"

"There's no time to write anything else." Don picked up the paper ball.

Recognizing the car, the crowd mobbed it and the emerging passengers. Don tried to send the multitude home, but between the din of the people and

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the wail of the siren, any attempt at communication was impossible. The two men fought their way through the wall of human flesh and somehow managed to get inside the station.intact.

The President rushed to his seat in front of the camera and Don raced to the studio blackboard. The test pattern on the monitor was replaced by the technician with SPECIAL ANNOUNCEMENT. A tape voice proclaimed, "This is a special message from the President, Earle Whitlam." The technician-director pointed, the red camera light went on and the President's mind went blank.

Discovering the speech in his hand, Whitlam decided one or two lines to get started could not hurt. "Good morning. First, reassurances are in order. The Sword sleeps. Repeating, the Sword sleeps. Its monitored activity is no greater now than it was five years ago. What *did* happen was something unique and, you will no doubt agree, wonderful. Here is the explanation of what happened." No! No! Whitlam mentally shouted, it's precisely what Yank wanted!

The camera had swung to Don so fast that Whitlam's mental anguish went unnoticed.

Don was putting the finishing touches on his sketch. "Thank you, Mr. President. Hey, everyone, howzitgoin'?

"This rough drawing is supposed to be Mt. Sword and the monitor just installed. This square is the generating station that's gonna be built soon. It'll house several steam turbines to generate a whole buncha electricity. Here's how it'll work:

"Sea water, purified by the solar still, is stored in these vats. The water is then pumped into Mt. Sword and the volcano heats the water to 1,400 degrees. When the water hits the heat transferer thinger, near the interior monitor, ca-choom! the water instantly expands to superheated steam. The steam rushes up the outer tube, whoosh! and through the turbines, hummm, and then through the cooling coils where it turns back into liquid and the whole mess starts all over again.

"The extra water in the vat's for drinkin' or in case the generators need more steam, which'll sometimes happen.

"These generators will each produce hundreds of megawatts, which is enough for alla St. George. And if the first generatin' station works kinda good, others will be built.

"OK, by now you're sayin' 'Hey, whyfor alla them lotta watts and volts? Even if everyone in the four islands turned on alla their razors and electric trains and everythin' else all at once, there still won't be enough of a demand for the electricity.'

"You're very obtuse—er, astute. Even a hundred years from now, kinda, even if everything was run by electricity and Christmas lights were hung on every brancha every tree and doorknob, there still wouldn't be enough electricity needed to take carea all that's produced.

"So, what's gonna happen is that the excess electricity is gonna be changed into microwaves and beamed into space and get ridda all the toxic wastes on the moon. No, the micros are gonna wave at a satellite. The satellite'll be in geosynchronous orbit. The microwaves beamed up to the satellite are gonna be

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beamed down somewhere else— wherever microwaves—uh, electricity—is needed.

"But first, there's a buncha stuff that's gotta be learned, such as steam pressure control and quantity, alloys and welds needed for the temperatures involved, and junk like that. So a chimney was built on the sidea Sword and connected to the heat exchanger thinger for test purposes. Inside the chimney was a piston with all kindsa things to measure the pressures and forces and whatever. For some reason, the intake valve opened and the water rushed into the volcano, ca-choom! whoosh!" And it did so far longer than necessary to launch the missile. "The piston was pushed outa the chimney and kept on goin'. Just to giveya some kinda idea of the power involved, the piston weighed eighty kilos and it was still *as*sending when it flew over the Dragon.

"It was the steam goin' ca-choom! whoosh! that made the noise and rumblin' and hot stuff you felt if you lived near the volcano and thought it was eruptin'.

"One more thing. This project hasn't been given much publicity 'cause there's lots to be done, and with people breathin' down your shoulder and lookin' over your neck and sayin' 'When's it gonna be done, Bunkie?' it makes the whole thing kind of a pain.

"Oh, yea. There's a monitoring device on topa Sword and one inside it. There's no way—ain't not *no* way—that Sword's a-gonna sneak an eruption past them. If Sword was about to blow, you'd all know 'bout it early enough to set sail to Cheyenne, Wyoming.

"Nuther oh, yea. This thing's already created a whole buncha problems, such as how much electricity to generate, how much to sell, where it goes, and who should own the satellite and ground stations, and other miscellaneous et ceteras that probably won't come up in a million and seven years. There's millionsa ways of usin' or abusin' that thing at Sword. The decisions that have been made will probably affect St. George well into the next week—uh, century.

"Very few people coulda made the plans and decisions Mr. Whitlam made in the interest of St. George's future, decisions made over the past few months in seclusion to avoid distractions.

"Welp, that's it. The Sword sleeps, but St. George's talents are bein' developed." He flexed. "It's great to be developed." He threw the chalk over his shoulder. "Missed." He dropped his arms. "That's it from Miss Nancy. Now back to the man of the hour."

Whitlam, glowering at Don, suddenly realized that the camera was on him. He looked dignified, and stated, "Yank's said enough, so good night and may God bless and keep you." He forced a smile until the camera went off and the tape announced that a special announcement had just been made. Then he literally jumped at Don. "The President wishes a word with you." Whitlam fought to restrain himself.

The phone rang. "It's for my cousin," the technician announced.

Don extraced himself from the President and took a Fieldsian attitude. "A reprieve from the governor! He no doubt wants a fourth for bridge." He ran into the control booth and took the receiver. "How did Gumlegs do in the

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fifth?" He wiggled his eyebrows.

"Yank," it was Uncle Brian. "Before Mr. Whitlam jumps down your throat, your friend wishes to tell you that your father had nothing on you." Downings hung up and Don stared dumbly at the receiver.

"Yank, are you quite through, then?" Whitlam demanded.

Don hung up and went innocently to the President. "Yes?"

Whitlam conducted Don into the Station Director's office, slammed the door, and shoved his young companion against the wall. "And what was *that* all about, then?"

"The realization of your wishes," Don replied in a forced-calm voice. "A native technology that grabs headlines, something the people can adapt to without disrupting their lives or lifestyles, and something that will make the country more important as it eases the balance of payments."

"Something better than the space program?"

"*Much* better. It doesn't involve a total commitment by the country and it's not redundant: St. George has a legitimate first."

Whitlam let go of the young man. The President changed from fierce aggressor to placated sympathizer. "You're right, Yank. You've been right all along. The President had a monomaniacal fixation. After that little discussion yesterday—"

"Yea, about that—"

"No need to apologize, Yank. You awakened the President. Do you recall the Parable of the Talents? The point was that it's not the *number* but their development. True, the five-talent servant was rewarded more than the two-talent servant, but they both prospered. It's not what you have, it's how you use it. Some people have everything and ignore it in their rush for more, others have nothing—" He looked at Don. "No matter, it was your work and you shall receive all the credit for this."

"No, *you'll* get all the blame—credit—for it."

"But it's your—"

"After what was said on TV tonight to get you re-elected, you have to accept credit."

"But—"

"Mr. Whitlam, if you refuse, my little sister will get a box of chocolates."

"At the risk of learning the answer, Yank, what are you talking about?"

"With the box will be a note saying, 'Dear Fat Person, As long as you're putting on weight, you may as well go all the way. Signed Earle Whitlam.' And, if you persist, my little brother will get a note saying, 'Dear Normal Person, you could never hope to be even half the person your big brother is, even after he's had a frontal lobotomy. Signed Earle Whitlam.' And, if you're still alive and you don't accept credit, my momma will learn that you have never, *ever*, cleaned your plate in your entire life."

"Understood, Yank! Understood!

"Right. Do you wish a ride to your office, then?"

"Whose office?"

"Yours."

"Yea, thanks." They went outside. The only other activity was the nighttime ocean and the love songs of insects. "Think they all heard?"

"Their children's children's children

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shall hear.'' They got into the car.

''Mons Olympica, and step on it!'' Don ordered the chauffeur.

''Bureau of Tourism, please,'' Whitlam told the confused driver. The limousine pulled away. ''Yank, how can the Assembly agree to authorize the construction without knowing?''

''They already have.''

''Your bills are accepted on faith.''

''And it serves them right.''

As Whitlam tried to figure out that remark, the car pulled over to the curb. Don got out and asked the President, ''Could you do everyone a favor? Go back to kissing hands and shaking babies.''

''Only if you continue to be a contumacious little boy who deflates windbags.'' Whitlam shut the door and the car pulled away. It reached the corner and then backed up. The President emerged and ran up to Don. ''Yank, what of the satellite, then?''

''If you don't hear anything, don't worry.''

''Then it might fail? Good!'' Whitlam laughed. ''If anyone had predicted that the President would be wishing for failure . . .'' He sighed in amusement and got back into the car.

Who said failure? Don mentally asked. The cassette was returned to the machine blank-side up. ■

In Times To Come

Next month we start a new serial—Lee Correy's first—called Shuttle Down. *The scene is so near future that you might almost be tempted to classify it as contemporary—but the problem out of which the story grows is one right at home in these pages. Given a radically new technology, just beginning to come into wide use, what adjustments have to be made to fit that technology into an existing world? Chances are that the developers did a fair job of anticipating the problems of interfacing the new technology with their own culture—but our world still includes* many *cultures. When the new gadget is unexpectedly forced into one of those to which it is truly alien, there will be problems the developers never dreamed of. Case in point: a space shuttle forced to make an emergency landing, when the only possible landing site is Easter Island, that tiny mid-Pacific dot best known for its great stone heads. Obviously—from the builders' point of view—the task at hand is to get the valuable spacecraft back off the island with all possible dispatch. But it's not nearly as simple as it sounds, and the political and cultural problems are at least as great as the technical ones—which are themselves far from trivial.*

The December fact article, by Rick Cook, is "Too Hot to Handle." There are a lot of questions for which we urgently need answers, but getting them is highly controversial because the necessary research endangers its surroundings—questions about things like nuclear power, recombinant DNA, etc. The solution, Mr. Cook suggests, may be straightforward: do the experiments where there's nothing around to endanger.

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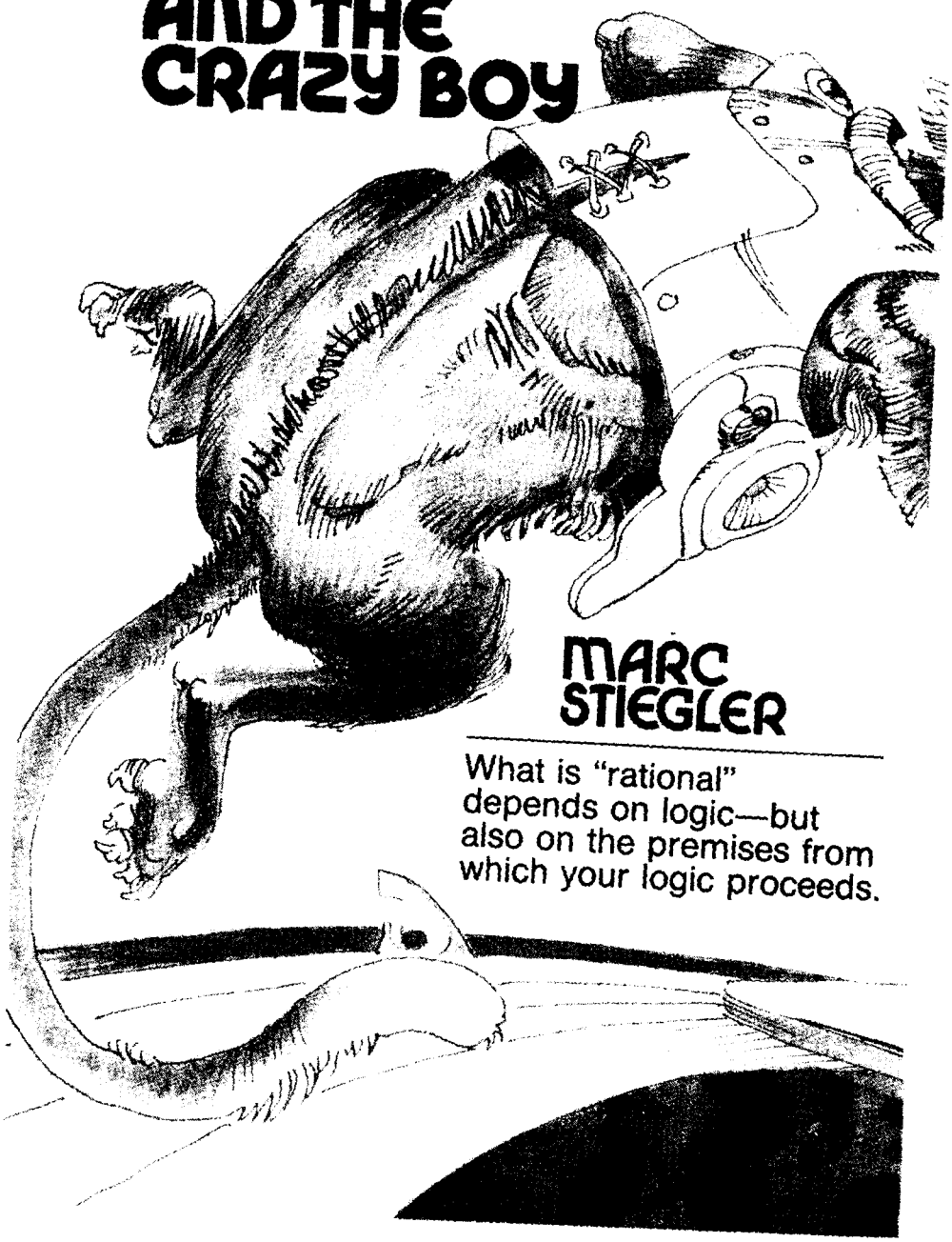
THE BULLY AND THE CRAZY BOY



MARC STIEGLER

What is "rational" depends on logic—but also on the premises from which your logic proceeds.

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Weightless, Fleet Admiral Encrai launched himself off the wall of the C-Cubed room, arched, snapped against the far wall on his front paws, twisted, and sprang back across the room. Ordinarily the lithe power of his body would have pleased him; but now he paced in fury, trying to regain his feline poise.

Damn! Damn! How could he have expected the stupid primates to be insane? Why hadn't the psychologists warned him? Granted, they'd told him the species hadn't completed its evolution to a communal hunting animal. Granted, they'd warned him to expect strange behavior. But this! How could he predict that, after crushing the puny defenses around Uranus, the primates' orbital city would accept his ships, then blow itself up? Unbelievable! Not rational! What kind of creatures *were* these?

Again Encrai questioned the wisdom of taking this solar system now; certainly it'd be more sensible to let this species ripen a bit, let them gain a measure of non-primitiveness (he hated to call it sophistication—certainly no *primate* could achieve *that*) so they'd be useful slaves.

His pacing slowed; at last he shrugged. The High Command's decision was made, their orders given. Encrai's full F class fleet would knock off the primates quickly, before the retrenchment wars began.

"Admiral—an enemy fleet just broke towards us from a planetoid fragment." Captain Taress spoke crisply from across the room.

Touching the controls on his magnetic harness, Encrai curved through the air to his command station. Floating between his webcradle and his console, he looked up at the holoscreen, which covered the whole front wall of the room. Part of that wall teemed with statistics and gauges, changing endlessly as the Flagship staff and the Command/Control/Communication staff requested new data.

But Encrai barely noticed these. His attention centered on the 3-D display of fleet dispositions. Part of that display now detached itself, to expand for detailed analysis in the tactical viewer. A dense handful of numbered ellipses, the primate fleet, approached the dispersed center of Encrai's fleet—approached Encrai's flagship itself! Unbelievable!

Chief Assistant Mrech, a bright young strategist, glanced back at him. "Looks to me like Jirbri's in position to pick them off fastest. Shall I punch it out?"

Encrai hissed. "No, it could be another pack of suicidal idiots. I'd better take care of them myself." Besides, he needed something fun to do; the disaster at the primate Outbase still rankled.

As he punched out commands on his console, a handful of ships on the tactical screen broke from the Kalixi formation to swirl around the opposing clay pigeons. But the swirling was careful—no Kalixi ship approached the pigeons closely enough to be destroyed by the explosion of a primate's main thrust chamber.

The battle was over at its beginning. A final blasting pass cooked the two biggest enemy ships; a handful of life boats scattered from them. Kalixi ships turned to mop up the lifeboats, but En-

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crai forbade it.

The Chief Assistant cocked his head. "You're going to pick them up?"

Encrai swished his tail in acknowledgment. "Only if they agree to leave the lifeboats and get picked up in spacesuits. I don't think a primate can be very dangerous with just the weapons he carries in his spacesuit, do you? And I need the information." In particular, he needed to know why the stupid creatures were so eager to blow themselves up.

The Admiral yawned. "Have Jirbri question them. When he's done, buzz." The Assistant mrowed understanding; Encrai stretched forward from his console, and floated out of the room.

A burrstinger buzzed close to him, spinning around him, waiting for him to stop trying to track it, so it could land. His nose, his nose was the stinger's target.

But his eyes were closed, and when he opened them he saw it was the intercom buzzing at him, and he himself was doing the spinning, tethered in the center of his room. Encrai touched his harness. "Yes?" he yawned.

"We found something interesting when we took the prisoners, Admiral." The Assistant's voice almost purred.

"Something interesting with the *primates*?"

"One of the prisoners is special." Encrai could almost see Mrech sniffing the high air.

"Very funny, Colonel. A special primate, indeed."

"It's true—apparently one of our guests is the creature that developed the primate defense strategy. He's an Admiral, of sorts. He seems quite eager to help us defeat him, since we pointed out how unpleasant his alternatives are."

Encrai opened his mouth, then closed it. With a furious swish of his tail he bounded into the hall.

Soaring gracefully back into the Command/Control/Communications room, Encrai watched Marine guards manacle a primate to the prison chair, next to the Admiral's control station. Encrai frowned for a moment; the chair had been designed to immobilize all kinds of intelligent beings—but all kinds of intelligent beings generally meant felines, canines, and low-gravity arachnoids. The chair didn't fit on the primate very well.

But then, these primates were weak little creatures, according to the precampaign analyses. The chair wouldn't have to fit to hold him. Encrai smiled. Besides, what could a primate do, even if he got free, amidst full-grown, full-clawed Kalixi? The Admiral turned to the psychmed accompanying the Marines. "Is this the primate," he curled his lips, "who calls himself an Admiral?"

The psychmed swished his tail. "Yes, sir. He seems to be the originator of the primate battle plans. The other prisoners support his statements under all forms of extraction." The psychmed ruffled his fur. "Naturally, when we found out that this," he tapped the primate with his tail, "was supposed to be an Admiral," we examined his mind, such as it is, a bit more carefully. He has a number of implanted psychoblocks, presumably protecting impor-

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tant information."

Encrai smiled. "No doubt he's protecting top secret technological details."

The psychmed laughed. "I wouldn't be surpised. Anyway, his blocks are sophisticated enough so that he might be damaged if I try to penetrate them hastily. Whatever is inside those blocks will stay there 'til after the campaign. Unless he tells us willingly."

Encrai raised an eyebrow. "Willingly?"

"Yes, we gave him a drug that stimulates verbosity. He'll probably be telling you a lot more than you ask for. I'm not sure it was necessary—*all* these creatures like to talk, it seems—but if you don't ask a question just the right way, you'll probably get the information you want anyway. Remember, though, it still won't register on the lie-sniffer if he just answers the poorly worded question truthfully."

"As if he had any secrets that could hurt us."

"Indeed."

Encrai's lips pulled back in a ferocious grin, exposing a vast collection of murderous teeth. "This is great! I've never planned a battle with the enemy Admiral giving me advice before. Such a shame it couldn't have happened in the battle with Valesh and his damned Crusairs."

The psychmed saluted. "Maybe next time, sir." He turned to leave, then turned back again. "Oh, one last thing. Two of the primate's teeth are filled with a chemical—a stimulant of some kind, leaking slowly into his mouth. The primate said the chemical keeps him alive, so we left it. It seems harmless enough."

"Fine. Let's hope he lives long enough to be useful."

The psychmed pushed toward the doorway.

Floating in his webcradle, Encrai examined the prisoner. He seemed small, even for a primate. Black hair and ashen skin seemed his dominant features. Frail was the best one-word descriptor. But the jaw was set in determination, even though the eyes stayed downcast. For a moment the primate reminded Encrai of a pouting kitten.

The Kalixi Admiral tapped his webcradle and drifted towards the prisoner, into the gentle breeze from behind the prison chair that made it possible for the great cat to be downwind of the primate. He closed his eyes to focus on the primate's scents: the bitter organic staleness of its soft body wrapping, the sweet saltiness of its perspiration, the flavor of its most recent meal—an almost fruity flavor it was, mixed with acidic digestive juices. How strange that fruitiness was! Encrai had never met an intelligent omnivore before. Not even a semi-intelligent one.

He tapped the pad on the translator. "I understand you're the Admiral of the primate fleet," Encrai said. The translator repeated the words in the local barbarism of a language.

The creature just nodded its head up and down.

Encrai swished his tail. "Well, are you or are you not the Admiral of the primate fleet?"

The primate looked at him with big eyes, then broke into laughter. "When I nod my head that means 'yes' in our language. Yes, my name is Craig

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Thearsporn, and I'm the Campaign Admiral for the Fleet of Interplanetary Alliance." He looked Admiral Encrai over. "Are you the Admiral for the Kalixi fleet?"

"Who do you think is doing the questioning here?"

The prisoner shrugged his shoulders. Gestures and expressions seemed to be important methods of communication with the creatures; Encrai decided to watch more closely. It wouldn't be difficult to infer the meanings; Encrai had a knack for such empathic intuitions.

The Admiral touched the lock button on his harness, to prevent any drifting while he questioned the primate. "What were you doing out here?"

The prisoner shrugged again. "The Kalixi we captured from your exploratory fleet told us that an Admiral always hangs far back, if possible. So we came to get you."

"Did you really expect to destroy me and my flagship?"

The primate turned his eyes down again, heaved a sob. "No, not really."

Encrai swished his tail. "And why'd you let us take you alive?"

The primate smiled. "For one thing, I wanted to live."

Encrai mrowed understanding.

The liesniffer's requirements were fulfilled, but the primate went on. "Besides, I wanted to meet you." He shook his head back and forth. "Ever since that first exploratory hunting party slaughtered every person on the first space city it found, I've known something's terribly wrong with the universe. So *wrong*. Why are you so vicious, so cruel, so determined to destroy and conquer? Why not come as traders, benefiting us both?"

Encrai snorted, then laughed. He shouldn't have bothered to answer, but he was vain about his species, and proud of his vanity. "Why don't we trade? Because, primate, the Kalixi are conquerors, not traders." His claws extended, retracted, extended. "For a thousand years we were slaves, as you'll be. We were declawed. We, the Kalixi!" The claws extended one last time. "But we were patient, learning in secret, as our masters weakened and waned and were replaced by other masters." His paw raked through the air, tearing the throat from an ephemeral opponent. "And under the terrible oppression, those of us who were weak died, and those of us who were strong gained strength. Now our enemies know us in our power and glory."

"You've defeated them?"

Encrai hissed. "We've destroyed them. The species who subjugated us are extinct, by our claws. Now we are the masters, and others are the slaves."

"So you're continuing the system you despised."

"It's a good system—the strong live and conquer, the weak serve and die." Encrai smiled. "You're lucky to be conquered by the Kalixi. We're the Destined Ones, fated to conquer the galaxy. Already we have over 600 solar systems and 150 slave species. No other single species has subjugated that many others for millions of years."

The primate seemed shaken. "Don't you have any allies? What about your enemies? Why don't *they* form an alliance? I can't believe the universe is so devoid of co-operation. Even among us, at least hate is powerful enough to

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mold friendships."

Encrai laughed. "Poor naive omnivore. I guess that with your background, it's understandable." Encrai looked the creature in the eye. "The universe is the domain of the carnivores, primate. Planetary evolution dictates it. With few, few exceptions, the carnivores develop intelligence first—and once a carnivore develops intelligence, no other species has a chance." He smiled; had he not become an Admiral, Encrai might well have been a university professor. "But regardless of how much our intelligence expands, still we retain our ancient instincts. We know the love of the good hunt, and the joy of the final kill." He spoke the words with relish. "And as we hunt and are hunted, our intelligence and instincts develop apace."

The primate shook its head; water gathered in its eyes. "Dear God, no! Are all the other species really like yours?"

Encrai swished his tail. "Of course not; they are much less sophisticated. From your point of view, though, they're similar." He rolled his eyes. "Actually, I've heard rumors of a group of omnivorous species that've united to protect themselves from the carnivores. But I doubt the rumors. How could omnivores survive long enough to find each other?"

A funny expression spread over the primate's face; for some reason, it made the Admiral uneasy. "Perhaps they survive by being just a little bit insane."

What did *that* mean? Encrai slitted his eyes. Oh well—at least it brought them to the topic of insanity; and that was the thing that interested Encrai. "Perhaps they have. Though it certainly didn't help the primates at the Uranus Outbase. Tell me, primate—why did that Outbase destroy itself?"

The primate wrestled with the chair, trying to get more comfortable. "That's a long story. Have you ever heard the story of the Bully and the Crazy Boy?"

The verbosity drug had definitely taken effect. "No, nor do I want to hear it now. Just tell me why they blew themselves up."

The primate shrugged. "We struck at you through the only weakness we could find."

Encrai turned bright eyes to his captive. "Indeed!"

The primate nodded.

"Well, goodness! Don't keep me in suspense, primate, tell me. I'm always trying to correct my defects." He wondered if primates were able to recognize sarcasm.

"Your flaw is that you're altogether too rational."

What a stupid thing to say! Faagh! Yet the Admiral's spine tingled.

"Yes, that was the only flaw we could find," the primate continued, "aside from a tendency to overconfidence. I fear you never let your overconfidence influence important decisions."

"Um. And, ah—just how did you figure out that we are, um, too rational?"

"Well, that's a good story too. I'm the one who realized you had this flaw—not because I'm the smartest Admiral we have, but because I've

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fought this fight before." He looked down at himself, then continued, "I'm a sort of small man, as you may have noticed, and—"

Encrai saw a complete autobiography coming, which he wished to avoid. "From all this I gather that the rest of your ships will behave as suicidally and insanely as the Outbase did?"

The shadow of a snarl passed over the primate's face. "With a vengeance, Admiral, with a vengeance."

"I see." The Admiral adjusted his harness, and returned to his control station. The central battlescreen brightened to full vigor as he touched the pads. Two disjoint sections appeared, the left one filled with the shape of the Kalixi fleet, the right one containing Saturn and its many moons. To the far left of the right section, two tiny dots represented the advanced scouts recording the Saturn scene; to the right of Saturn, on the sunward side, a small group of large objects approached the planet and its system.

"Tell me, primate, what are those clumsy objects moving toward Saturn?"A pointer appeared on the screen and drew the skeleton of a sphere around the spots of light.

"They're the battle stations from Earth, I imagine. Admiral Springrain deduced that you'd come from this direction. It's the obvious line of approach, if you plan to take the planets one at a time. When we realized that we'd have to meet you at Titan, the Terran Federate sent its battle stations to help defend Titan." The primate smiled. "Actually, I should thank you, after a manner. You're the first thing that's united mankind since the beginning of history."

"That's right, I'd forgotten. Your species wars against itself, doesn't it?" Amazing. At least they'd make a fascinating study for the xenologists. Evolution had been short-circuited here. Lessons could be learned.

Another thought struck Encrai. "So you anticipated our coming this way. I'm impressed."

"We assumed you'd take the simplest route. That destroys the element of surprise, but you can beat us without surprise. Your technology and tactics should beat us regardless."

Encrai appreciated that; it was exactly the conclusion *he'd* come to, of course. "You admit we'll win?"

Water collected in the primate's eyes. "How can you lose! You have more people, more resources, better technology. You're certainly more vicious, and...if the handful of prisoners we took from your exploratory group are any indication, you're even,...you're even," the primate's voice choked on a sob. "You're even smarter than we are." The primate's face contorted with bright dogged anger. "And we intend to beat your damned tails down your throats, and stomp you into pulp and spit on you when we're done."

The Admiral smiled broadly. "Good for you." So they were realistic—but spunky. "Tell me, where are your fleets, and where are they going to be, in order to carry out this commendable operation?"

The primate told him, expansively. He described the details of the designs of the ships in each fleet. He explained

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their tactical theory upon entering the conflict.

Returning to his console, Encrai set up a new scene on the display, a close-up of Titan and its neighbors, and started the games. Fleets entered the 3-D playing area and splintered into ships. The ships in turn branched into sets of potentialities, vectors for their possible actions. Then, one by one, inferior potentiality branches dissolved, and optimal ones solidified. The scene commanded all of Encrai's attention; this was one of the parts of war he enjoyed most.

The battle's dance slowed as primate ships winked out of existence in the midst of their optimal paths; none escaped the Kalixi guns. "You know, it's almost a shame your species hasn't learned to compensate for acceleration without locking everybody in a stasis box. This could be a pleasant battle, if your ships could maneuver."

The primate just floated in his chair.

Encrai took careful note of a flaw in the design of the primate strategy, and played out a second scenario. The new game ran quickly to completion, as Encrai had predicted. "Why commit your fleets in such a loosely coupled fashion? There're large gaps in the pattern."

The primate nodded. "Yeah, we left some openings for the research ships to watch through."

"Research ships?"

Again the primate nodded. "Assuming we survive this time, we'll have to know a lot more to survive again. The Martian Republic donated its research fleet. We hope to get detailed pictures of your ships in the instants before they explode, after our missiles strike. By putting enough of those fragments together, along with the remains of the destroyed ships, maybe the next time you come to the solar system, you'll be facing ships just like your own."

Encrai snorted. "Fools! You think you can understand *our* technology? Just by taking pictures and collecting debris?" He searched his memory for an analogy, something out of the alien's own history. "Could a medieval primate build an airplane just by looking at the construction diagrams? It's absurd."

The primate winced. "I don't know. Certainly no ordinary medieval man could have done it. But a medieval man who knew the scientific method might be able to, given time. The scientific method is our greatest strength. It's the best method for learning there is." A look of—horror? Yes, a look of horror passed over the primate's face. "Unless you've found something better than the scientific method. If you've learned a better way to learn, we're lost." His eyes held a plea. "You don't have anything better than science, do you?"

The great cat hissed; Captain Taress turned to look at him with puzzlement.

The alien was right. Science was the key, and the Kalixi had nothing better. For the first time, a chill of fear ran along his spine—a chill he very quickly suppressed.

Encrai punched in a new set of orders for his fleet, modifying their battle plan. "You shall pay dearly for the opportunity to learn from the

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Kalixi," he muttered grimly. The new orders detailed a massive incursion into the gaps between the alien fleets, breaking their flanks and splintering them in chaos.

Encrai yawned, and stretched. He turned to Chief Assistant Mrech. "Colonel, watch after things, will you?" With a look at the timetable, he turned to the alien. "I'll be back in about 6 hours. We'll watch the battle together." He smiled. "May the best minds win."

The burrstinger closed, closed, and —Encrai opened his eyes with a start; his whole body was bent with tension, ready to pounce.

It was wrong—something was wrong in this campaign, but he didn't know what it was. And his hunches seldom erred.

But until his hunch blossomed into understanding, he could do nothing. And soon it would be irrelevant, anyway. The battle was starting. It was time to go see the show.

Encrai hurtled through the air at terrifying velocity, snagging the edge of his webcradle with outstretched claws as he passed. Back at his console, he created a new display upon the holoscreen; now the two scenes, one of Titan and the other of his fleet, coalesced. Saturn lay dead center, straddled by two opposing armadas. The humans far outnumbered the Kalixi. They looked quite imposing on the screen, but it was only an illusion. In the first conflict, between a Kalixi Class J fleet and the Martian Second Fleet, 25 Kalixi vessels knocked off 180 primate ships before the primates pegged their first Kalixi ship; even after that, the Kalixi lost only three more ships, while the humans lost another 46. Armor alloy and fusion missiles just couldn't contest the clean power of gammaxers and gravshields. For the upcoming battle, the High Command anticipated the destruction of eleven human ships for every Kalixi; considering the weakness Encrai had found in the alien strategy, newer figures suggested a ratio of seventeen to one. And the human's suicidal tendency made no difference—insanity worked once, but only once.

Then why did Encrai's intuition disagree?

Encrai turned to the prisoner. "I wish to compliment you on the accuracy of your reporting. The fleets are indeed arriving just as you said they would, in just the disposition you described. Thank you."

"Yeah." Shadows hung under the prisoner's eyes, and stubble darkened his chin. The Kalixi Admiral chose not to notice.

Instead he turned back to the holoscreen. It was all so beautiful. Simple and elegant. There was, he told himself, nothing to fear.

Then the outer edge broke away from the battlescreen, forming a set of new displays far removed from the battle. These new sections held no fleets, just scattered ships—but the ships were moving at incredible speeds. The Kalixi advance scouts had just detected them. And though they were far away, they were unquestionably heading for the battle zone, and they were accelerating at the fastest pace that the best of the alien stasis

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boxes could handle and still keep the occupants alive. Encrai played with the controls, and potentialities expanded from those ships in narrow, senseless patterns.

To get to the battle in time, they'd have to continue to accelerate, and when they arrived they'd be going so fast they'd only be in the battle for a few seconds before they flashed past, hopelessly out of control, to speed beyond the limits of the solar system and die—for the aliens had no interstellar jumpdrive, nothing that could get those ships home again. It was truly suicidal, and in that sense at least it seemed typical of these primates.

"Where did those ships come from?" Encrai asked in tense bewilderment. "Where are they *going?*"

Somehow, the prisoner's silence seemed ominous. Encrai turned to the alien, and saw that he was no longer haggard and tired. His eyes were bright with a new emotion—was it pride? Could a primate feel pride? "Tell me, primate Admiral, what are those ships doing out there?"

The man smiled broadly, and Encrai's gnawing tension leaped in his throat. Instantly he swung over the human, claws extended, ready for the killing stroke. "Tell me," he spat.

The man leaned back, squirming away from the claws. "Where'd they come from? They came from the far side of the sun, beyond the bounds of the solar system. They've been accelerating since we figured out your timetable." He paused, and Encrai came closer with his claws. "They're on their way to the battle, obviously. They're on their way to *win.*"

"How? They'll only be *in* the battle for a few seconds before they leave again, as swiftly as they came. They'll hardly have time to fire, much less time to aim."

The prisoner raised an eyebrow. "Well, in one sense you're even more right than you realize—many won't get to fire at all. By the time they get to the battle, they'll be traveling at almost a third of the speed of light. Many of those ships'll be dead hulls even before they get *to* the battle."

Encrai cocked his head, questioning.

"Don't you see? At one-third the speed of light, every dust particle in the solar system is their enemy—because in *their* reference frame, those particles are traveling at a third of the speed of light. Those dust particles, then, are slow—but incredibly massive—cosmic rays."

Encrai's eyes widened in dawning horror as he leaped to the console. He trembled as he composed the fleet's evacuation orders.

And as he worked, the prisoner's words taunted him, telling him what he already knew. "Of course, that works both ways. Those ships, those ships, *Admiral,* are the biggest damn cosmic rays in the universe right now. They won't *have* to aim their missiles—they aren't even going to try. Their warheads are just hunks of lead, with enough deuterium to vaporize. They'll explode way in front of your ships, leaving clouds of lead nuclei cosmic rays to blast through your damn gravshields. How long can your gravshields take *that,* Admiral?"

The evacuation orders sped from the Admiral's console. He finished,

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looked at an instrument display, and sagged in his cradle in agony. "Too late," he sobbed in a cracked voice. "I'm too far away. My beam'll take half an hour to get to Saturn from here. The suiciders will arrive before my message does."

The man broke into hysterical laughter. "We didn't have a chance, not a chance in the world. But we tried, goddammit, we *had* to try, and we *won!*"

Encrai was too numb to respond. He looked dully at the display, saw a small mystery resolved. "Those gaps between your fleets—they're for the suiciders, aren't they?" The gaps into which Encrai had sent so many Kalixi ships.

The human Admiral nodded. "They're really for the research ships, but they're tunnels for the suiciders as well."

Burning, paralyzing terror fought with cold, penetrating thought in Encrai's mind; but he was Kalixi, and thought won over terror. He set his teeth in determination. "That still won't destroy my fleet, Admiral. You'll hurt us, terribly, but we'll win anyway. We're warriors, Admiral. Even this can't bring you victory."

The human Admiral shook his head again. "You've missed the most important part of the attack. We aren't counting on a single pass to destroy you—because those ships won't ever get to pass. Look at the trajectories and the timings on those ships. Go ahead and look, Admiral."

Encrai turned to the holoscreen. Under his direction, the senseless patterns branched again—then, far faster than anything he'd ever seen before, the branches fell away and a handful of single solid certainties locked into place. The certainties emanated from a single point in the center of the Kalixi formation, radiating out in a cone to the suiciders' ships. Encrai gasped. "Spiders in web! They're going to collide with each other!"

The human—what was his name! Thearsporn? Thearsporn nodded again—an awful custom, this nodding was. "We hope to get ten to fifteen of them to ram together within five nanoseconds of each other. The explosion won't be as bright as a star, but it'll be pretty close."

New waves of shock washed through Encrai's brain, waning as his mind froze, waxing each time a coherent thought tried to form. "My fleet. The center of my fleet." He shuddered. "But your own ships! That star will destroy your own ships as well!"

Thearsporn turned sober. "Yes, it will. Only the farthest research vessels will survive."

Encrai ripped deep tears in his web, unbelieving, incapable of believing. "Why? How?"

The Admiral's voice answered gently. "Let me tell you the story of the Bully and the Crazy Boy."

Encrai had no answer.

"Once there was a crazy boy who always walked home from school. One day a bully confronted him, and dared the boy to get around him. The boy tried to cajole the bully, but failed. So they fought. And the bully beat the boy unmercifully. But in the course of the fighting the boy got in one good blow, and bloodied the bully's nose."

The voice through the translator was

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soft, soothing; by concentrating on the voice, Encrai could think again.

"The next day, the bully and the crazy boy met and fought again, and the boy was brutally beaten, but again he got in one good blow, kicking the bully in the knee."

Encrai noticed Thearsporn's face; it became increasingly contorted as he spoke. The words were heated now, and Thearsporn's eyes, which were bright before, now burned.

"And they continued to meet and fight for a week. By then the crazy boy was a bruised mass of ruptured flesh. But despite all the bruises he wasn't defeated. In fact, he looked up at the bully and pleaded, 'please, please don't make me hurt you again.' The bully laughed at him, knowing he was a crazy, stupid boy—but he stopped laughing because laughing hurt, because the boy'd split his lip the day before, and the bully put his hand to his lips, and felt the swelling from his eye that still hadn't subsided, and felt the pain in his knee as he shifted his weight. And the bully looked at the crazy boy with horror, and turned and hurried away."

Encrai felt bile rise in his throat. Insanity, insanity was what this man was about. Why couldn't Thearsporn and his kind just accept the idea of slavery, like rational beings, when the alternative was death?

Encrai's numbness was gone; rational thought replaced the emptiness.

And with new thoughts came a new wave of horror. He formed new orders on his console; orders for his flagship and personal guard.

Captain Taress gasped as he read the orders. "25 g's! The compensators won't be able to handle it all."

"I know that, Captain," Encrai growled. "Do it anyway!" Encrai turned back to the human Admiral. "Are any of those suicidal ships headed for *us?*"

Thearsporn shook his head. "Nope, 'fraid not."

A stench from the liesniffer assailed Encrai's senses; his snarl was cut off as a hammer of acceleration nailed him in his webcradle. The human snapped sideways in his chair, awkwardly positioned to survive such force. "Where are they?" Encrai demanded of his prisoner. "How soon will the suiciders get here?"

Thearsporn twisted into the acceleration, trying to get away from the even more terrible agony assaulting him from the pain transmitters in the chair. "They're, they're off to one side, away from the scouts. Coming from an off angle. Should be here any minute."

Even as Thearsporn spoke, Encrai saw a dozen cosmic rays blossom into existence on his flagship's own scanners. With a strangled cry, Encrai screamed interception orders for his ships, orders they had only seconds to execute.

But Encrai's officers were the best in the universe, and they made it. The guardships lurched forward, spraying death even as the guards themselves died. The flagship's acceleration rotated 90 degrees and doubled. And the dead crews of the suicide ships couldn't retarget on the dodging flagship.

"We made it," Encrai muttered,

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then shouted in joy, "we made it!"

His thoughts turned to the future even as his happiness swept away his horrors. They would have to send another fleet to this system, he realized. His personal career was destroyed, of course, but there was something more important here. These crazy primates had to be subdued.

It would be difficult to convince the High Command to send another fleet now, with the retrenchment wars coming, but Encrai would convince them. And it wouldn't take much; even a class H fleet, hardly bigger than the original exploratory group, could beat the remains of the human defenses. Yes, a class H fleet...and a single Planetburster, just in case the fleet failed to conquer. Yes. Encrai turned cheerfully to his prisoner.

The prisoner was clamping his jaw, swallowing hard. Encrai remembered the psychmed talking about a stimulant in the primate's teeth.

"What..." Encrai started, then slapped his hand down on the alarm button. The man's complexion darkened, perspiration erupted from his face, and Encrai could smell the man's anger as he tore himself from the ill-fitting prison chair in the 5 g gravity.

With a powerful lunge Encrai was upon the beast—for beast Thearsporn was, with the light of insanity in his eyes. Closing swiftly, Encrai delivered a lethal stroke of his claws.

But Thearsporn snapped away, and the lethal stroke merely raked across his side, drawing a swath of skin and blood. Thearsporn extended his fist with impossible strength, and bones snapped in Encrai's side as he crashed through the air.

Disregarding his pain, Encrai followed as Thearsporn dodged down the corridors. A Marine appeared and fired a lasgun through Thearsporn's abdomen, but it didn't diminish his speed. He disappeared around the corner.

Encrai realized that he was heading for the fusion pool at ship's center.

The creature was insane, no doubt about it. Worse, he was dying—he was already dead, if he would just realize it; no doubt about it. But he would not realize it, and he would get to the fusion pool; there was no doubt about that either. Encrai wondered briefly how the Admiral knew where to go and how to get there.

Not that it mattered. Encrai started to take a deep breath, found it was a terrible mistake. The broken bones in his chest must have punctured a lung. And an artery. Moist warmth collected near his throat. He was dying.

Not that it mattered. In a few moments he would become part of another, even smaller, star. Admiral Thearsporn's star.

Encrai sighed. He felt a certain sense of guilt, failing his people like this, but the guilt seemed remote. Poor, poor Kalixi. He wished he could tell them; he wished he could tell them how much they still had to learn before they could conquer.

But for now the learning was too late; and soon the fury of atoms in bondage conquered all. ■

We have too many men of science, too few men of God.

OMAR BRADLEY

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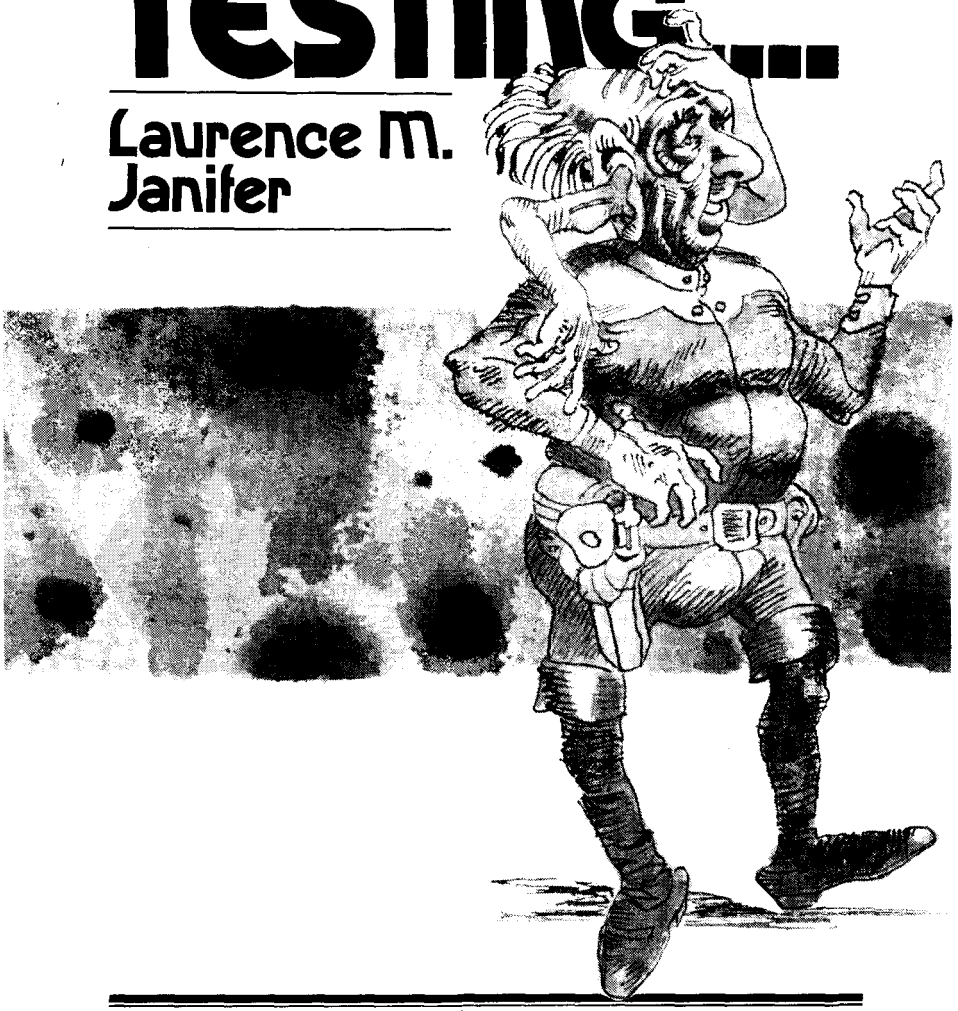
TESTING...

Laurence M. Janifer



IQ tests are sometimes criticized for testing knowledge rather than intelligence. The distinction is a lot sharper than some folks realize.

Leo Summers

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This one is hundred years old, and if it weren't for the Anniversary you wouldn't be interested. And I wouldn't be telling it, because I'd have better things to do. As it is, though, this is a footnote to history—no, make that History: why not?—and I have permission to open it up, after all this time. It seems that somebody up there, about three hundred and fifty light-years from home base, happens to like me. Don't ask me why, unless it's because I fit their notion of what an intelligent being ought to be.

Hell, I fit my own notion, too—and so do they. There are a lot of odd types, human and otherwise, floating around inside the fairly small volume of space we've managed to figure space-four routes in, so far, most of whom are not, by my handy measurement, intelligent. (If you'd like to try measuring friends and neighbors, you can begin with Knave's First Rule: Never give information away free if there is the slightest chance that somebody might be willing to pay for it. Human or non-human, two legs, six or none, I don't know one being in a thousand who's heard of that rule, let alone tried following it. The ones who have, I value. Highly.)

But the Kelans meet my standard. Hell, they meet every standard I've ever heard of, and probably a small pile of standards nobody has come up with yet. If there really are any Wise Beings of the Galaxy, they are either Kelans, or beings we've never met. You've run into Kelan types on 3V all your life, despite its being a fairly tough makeup job—always showing up in the last ten minutes to hand out what the writers seem to think of as Words to Live By. You may even have run into a Kelan or so: they're not standoffish, and once you get used to chatting with a teeny green midget who has arms growing out of his ears (as well as the usual-human pair), they're good people to be around. And, as I say, they do seem to like me.

Well, I did them a favor once—which involves a Princess, a glass slipper, and a Fairy Godfrog, and is a whole other story—and, as payment, the Kelan Advisor-for-Other-Races tossed me this story, permission to retell included. As part-payment, I ought to say: there was also a small purse of actual gold, not subject to Comity tax—the Kelans tend to think big, and, when it comes to payment, so does yours truly, Gerald Knave, Survivor. The small purse sustained what I like to think of as my normal life-style for some time; now, with the Anniversary, this story might just sustain it a little more. Hell, if it doesn't, I'll have to go back to work, busily Surviving on one unpleasant planet or another—so it is definitely worth the chance.

All the same, it *is* a chance: you might not take to this one at all. The Anniversary of humanity's first extra-terrestrial landing is one thing, and a story all about flying saucers is distinctly something else. I mean, flying saucers make a couple of small paragraphs buried in the histories of that age, and everybody knows they were a combination of mistaken sightings and mass hysteria. They were about as real as those pink elephants long-time drunks are supposed to see.

In other words: strictly imaginary, and totally unimportant. Right?

Wrong.

It seems that there really were flying

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saucers. The Kelans know, because the Kelans constructed them, manned them, and spent thirty or forty Earth years making sure they were sighted and reported. And they had a reason—perfectly obvious, once you've heard it, but a reason nobody ever did come up with, back around moon-landing time; if somebody had, the whole space program might not have gone into the decline that put a pall over the 1970s and early 1980s. That was the Kelans' doing, too—mental-emotional influence is a specialty of theirs, though they use it only when they feel that it's absolutely necessary. There would have been *some* sort of outcry about the space program—"Why not spend the money here on Earth?" is an obvious, if idiotic, battle cry; if you want to toss anything into space, you have to spend the money on Earth to start with, don't you?—but that outcry wouldn't have had the force or the awful influence it did have, during those years, without outside aid.

The Kelans were not fond of their saucer-work; and maybe the easiest way to tell this one, most of the way, would be by transcribing a sheaf of memos from the Kelan in charge of the program at this end, directed to the Kelan opposite number, back home. Not that they had memos; as I say, they're an intelligent race. But shaking things down into a set of memos makes it Earth-comprehensible; God knows that, in three hundred years and with a magnificent, showy and fairly well-organized Comity of Planets, we haven't advanced anywhere near the non-memo stage. In fact, there are times when I think the whole thing is a plot by the manufacturers of fax sheets and communications equipment. If you laid all the memos issued by the Comity, only for Home Worlds use and only for one standard year, end to end, you'd have the longest, most useless off-yellow brick road in the known universe. And half the damn things would say *Cancel previous memo*; they always do.

However: memos.

Time: 1980. The saucer program was over thirty years old by then, which provided time enough for the Kelan-in-charge at our end to get very truly bored indeed.

January 2, 1980 (Earth AD)
From: Wheem, in Earth orbit*
To: Freek, Kela-Obital Base*
Subject: Program continuance

This is not, repeat not, an official document. Let's be frank; you pulled a string or two and got me this assignment, and it might mean a few toes up, and I'm grateful. But, as one old friend to another, it is damned well time to register a complaint.

This program has accomplished its stated purposes. We are stuck out here, far from groupings, friends, and even the normal amenities of civilized life—in thirty-three Earth years (equals seven and an eighth normal months, friend: I won't put you to the trouble of doing the conversion), we have had to do without even half-surround feelies, let alone gamma massage. Sure, we knew what we were in for when we started, and we were prepared to go without for as long as we had to. But we don't have to any longer.

The answer to our basic query is perfectly clear by now. According to our best semicomputers, we've got a fairly

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long-term No here, probability 0.884. And 0.884 is as good as we're going to get; what the hell do you people want back there? Unity?

A continuing ban on extraplanetary travel can be established with automatics; we can recheck in a hundred Earth years or so; and, meanwhile, we can all get back home.

You know the procedures. We've been "appearing" to a wide variety of subjects, mostly non-scientifically connected, in farm, small-town or otherwise comparatively isolated locations. We monitored response both for immediate and long-term attitude toward our query, all the way from the first hysterics, through the choosing-up of sides, to the current balance between deliberate ignorance and fervent, absolute faith. The latest sampling is forwarded herewith; these are your basic figures:

Are there such things as UFOs/"flying saucers"? (Both labels continue current; analysis of this labelling is enclosed.)

Yes: 36%

No: 54.2%

Sometimes (i. e., respondent's choice of reports is accepted as valid, no rationally defensible pattern of choice being present): 7.4%

Don't know: 2.2%

Inappropriate response: 0.2%

This last category includes, as usual, all those whose relation to reality is so tenuous, due to age or mental/emotional condition, that a response can not be meaningfully calibrated—such replies, if I may translate a few into Language, as: "I am the King of the World and can't be bothered by such details," or: "I am sexually attacked by them every Friday evening, directly after sundown, but at other times they do not exist." Humans tend to be a bit more detailed and concrete in their responses, even in this category, though there are no significant percentage differences from other surveys; again, detailed analysis is enclosed.

Now, I ask you: doesn't that list establish a No as definitely as the program ever requires? If you doubt me, Freek, semicompute the thing for yourself; your facilities, God knows, are a good deal better than ours, out here at the edge of the wilderness.

Frankly, Freek, I'm tired. And so is the rest of the crew here. Even the semicomputer banks seem to be slowing down a little, which is not at all a good sign.

Can't we write this one off as a No, then, and jump on back to civilization?

Wheem

6.16.16,980 (II)

From: Freek, KOB

To: Wheem, *on assigned duty*

Subject: Assigned duty—continuance thereof

Very well, old friend, we'll keep this unofficial; why put your bulb on the block simply because (as the Earth dating of your memo makes much too clear!) you've gone a little native?

I put your data (including that lengthy and confused analysis of the inappropriate-response group; please, dear Wheem, don't try to bury me with data) through semicompute, not once but three times, using three separate mind linkages for my circuits. Either your equipment is a good deal worse than it

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ought to be—which I sincerely doubt—or you've begun to let wishful thinking color your data input; the best I get is 0.7—nothing like your hopeful 0.884. And that 0.7 is the *best*; the lowest figure my processing provided was (expectable, after only seven months) a simple 0.595.

No, old friend: try a little self-examination, and get rid of those native tendencies. What you're suffering from is that very common disease of nonspace beings, "impatience." Take another look at your figures; take another look, for that matter, at the entire project. That may effect a cure.

I sincerely hope so. Please believe that I continue to wish you the best, and hope for the earliest possible termination of this project; after all, it's just as boring for me, stuck in an office interpreting results, as it must be for you.

The whole UFO-test process is a damned bore, and we all know it—but I'm afraid we're stuck with it, for now.

Freek

7.16.16,980 (II)

From: Wheem, still on useless duty

To: Freek, KOB

Subject: Rational Analysis of Data

Put those results through semicompute again. I think you've got a degenerate mind in one of your linkages, or worse—no surprise, with all of Kela to distract you, and nothing like our stubborn insistence on making the machinery work properly. Unless it does, we can't wrap up the project here. And that, dear Freek, is a stronger motive than anything a tame, homebound administrator would know about.

In the past four (Earth) days, we've

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*Dianetics: *dia* (Greek) through and *nous* (Greek) soul.

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created three "sightings" and two "meetings," each, as usual, contradicting others in noticeable degree. The "sightings" were (check your maps and lists) at Chillicothe, Rabat and Quemoy; the "meetings" were in Karachi and Midway Island. There has been minimal notice of these events on a planetary scale; we are experiencing an expected trough in reportage, which will be followed, in eleven or twelve Earth months, by the usual rise—if we must still be here to chart it! We have, however, been able to check responses among those who *have* been informed of any of the events, or, of course have experienced them.

The *Don't Know* percentage is 3.01—well within the limits of error, and confirming my last report. Probability for this figure, according to our very best semicompute, is now 0.899, which I feel is nothing less than spectacular.

Close the place out. Mark it No.

Please.

Wheem

8.16.16,980 (II)

From: Freek, KOB

To: Wheem, on assigned duty

Subject: Rational Analysis of Data (!)

Spectacular, Hell.

The word is "unbelievable."

Freek

9.16.16,980 (II)

From: Wheem, on duty

To: Freek, KOB

Subject: Patience, Fortitude and Obedience

Very well, old friend.

Calculation, done with the greatest care and perspicacity, means nothing.

Friendship itself means nothing.

We are to remain here until hell, apparently, turns into an Ice-IV skating-rink.

And this, in spite of the fact that we have clearly established the basis for a decision (probability, I insist, no less than 0.88!):

Over 97% of these beings are convinced, without serious doubt, either that our UFO/"saucers" exist, or that they do not exist. Less than 3% retain any noticeable uncertainty in the matter.

My dear Freek, what else is there to say?

However, we will continue to create events, and interpret results, until someone back home—somehow, old friend, I doubt it will be you—decides we've had enough of these barbarities.

What else is there to say?

Wheem

Not much, really.

That basis for decision might need a little explanation—and, more likely, the reason for the very sudden change in percentages which did occur within less than twenty standard years ought to be laid out here. Most of you will have figured the thing out for yourselves by now; to begin with, what other motive could those UFOs have had?

For the record, though:

The two different sets of figures were based, it turned out, on two slightly different assumptions—and humanity is fairly lucky that the Kelans dug that out soon after their "exchange of memos." Wheem and Freek were both right, and they were both wrong.

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As long as we were restrained from space exploration, any real percentage change was unlikely as hell; once we'd had a real taste of it, far enough away from "local planetary conditions" to stumble over space-four, that change was just about certain. Wheem was right about us, as a restricted race; Freek was right as soon as we were allowed out from under.

Because a solid dose of space exploration rubbed our noses in the single most important fact of the real world, and we haven't forgotten the lesson.

Uncertainty, of course.

Most intelligent beings spend nearly all their time in a condition of very real uncertainty; Unity just doesn't occur, and a probability of 0.99 is a good deal rarer than even a memoless bureaucrat.

It is a lot easier, and a lot less wearing, to live as if this fact weren't so—and, before the Kelans lifted their ban, most human beings did live that way—until the probabilities caught up with them, of course. (They really did. Read your histories; better yet, read your preSpace fiction!) Either there were UFOs, or there weren't; a human being might remain uncertain for some small while (say, a standard year), but not, usually, for any longer.

Then, one way or another, he made up his mind.

This is not intelligent, by Kelan standards, or any others.

The ability to live, function and remain reasonably sane, under conditions of continual uncertainty, is the final ability needed for any space-faring race. The probabilities, in any space-four jump, are awfully good; but they remain probabilities, and any pilot, passenger or theorist had better know it. (The same goes for the probabilities of any Earth-based event—but that fact is less obvious. *No* event is a certainty, until it's happened; *no* conclusion is defensible with inadequate data; but it takes space-four, where small probabilities, and unlikely data, have to be taken into account to try predicting any human action whatever, to drive the point home.)

As long as most of us were sure, one way or another, about those UFOs, we were labelling ourselves Unintelligent, in large red letters. It is not easy to live with uncertainty—but, then, it is not easy to live, period. Ask any Survivor.

Happy 300th Anniversary, everybody. And, please—let's not slip back any. If we collapse into the easy life, ever again, friends, we might just find ourselves back on one small, inadequate planet.

Which would suit me just as badly, I am sure, as it would suit you. ■

*These names have been invented. I have not used the actual Kelan names, partly out of respect for the Kelan race, and partly because I have no idea what the hell they were.

G. K.

Science has given to this generation the means of unlimited disaster or of unlimited progress. There will remain the greater task of directing knowledge lastingly towards the purpose of peace and human good.

SIR WINSTON CHURCHILL (1944)

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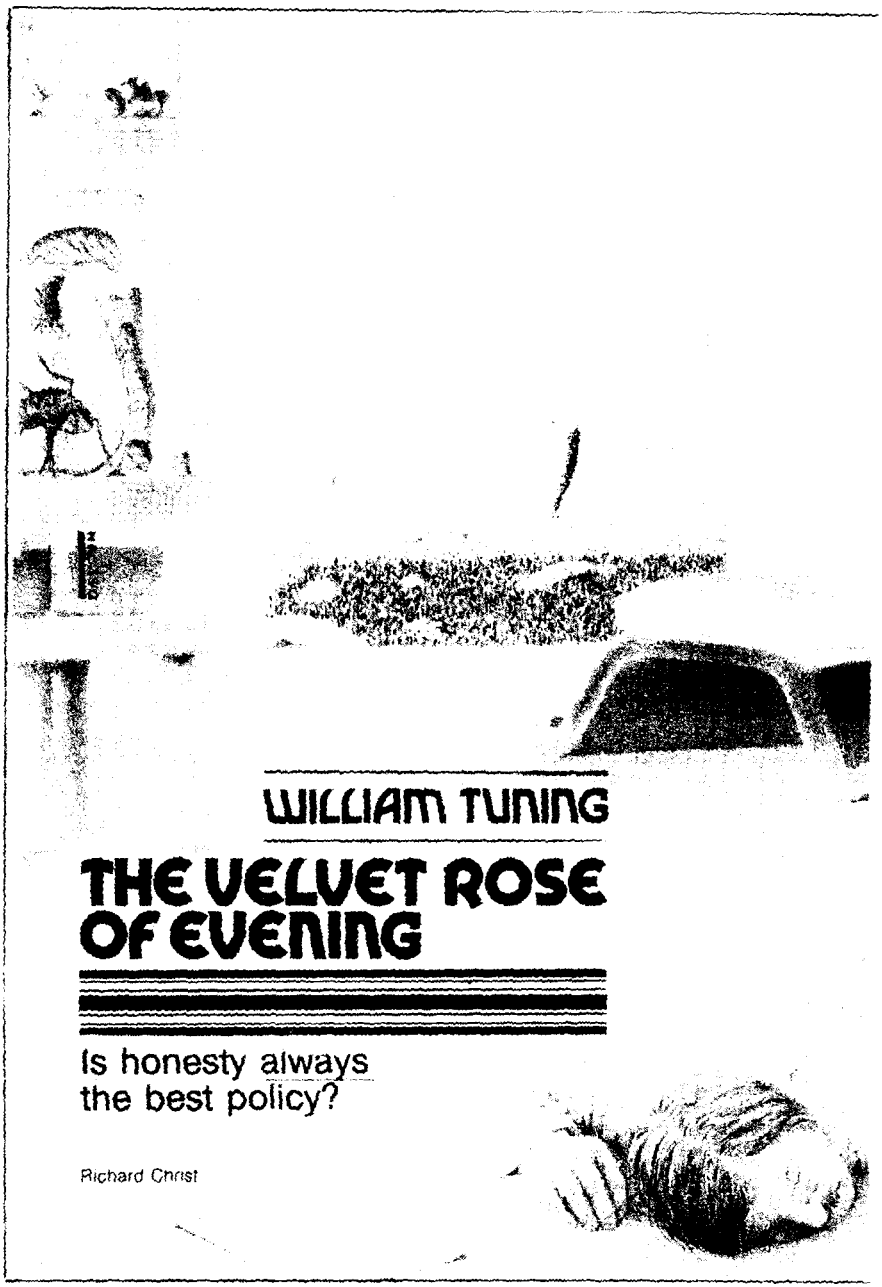

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"Midnight was a champion.
He's the only bronc I couldn't ride.
But now I hear ole Midnight's blind,
And rides the little children for a dime."*

The recreation room at Prime Station was not small in any normal sense, but when virtually everyone on station was gathered there—as they were now to greet an incoming project engineer—the ambience of the place became—well—intimate.

Previous project engineers had agitated the government, periodically, for an additional pod to be installed to make Prime Station more comfortable, but Kallenberg's Planet wasn't as important, now, as it had been when Geoff Brettman was the shining light of exobiochemistry who discovered the trisome on Kallenberg.

It seemed very important at the time, perhaps because of the sheer novelty of finding a tri-lobed DNA molecule—the answer to the *why* of Kallenberg's trilaterally symmetrical life forms. The exciting possibility of variety was thrust into the entire system involved with the value of research to interstellar exploration. The DNA molecule suddenly did not *have* to be a double helix. On Kallenberg's Planet it was three helices, joined to a benzene ring with three identical aliphatic chains attached to the 1, 3, and 5 positions.

But, Brettman's discovery hadn't come to much over the succeeding years, partly because no one had figured out how to make a buck with it and partly because the big chatter these days among xenologists was centered around the foraminiferan domestids recently discovered in the Eta Cassiopeiae A system.

Prime Station was a lot like Terra.

More people.

Same space.

"Good afternoon, Dr. Brettman. I've always wanted to meet you."

"How do you do, Dr. Brettman. It's an honor to have you assigned here."

"Pleased to meet you, Dr. Brettman. Does the place look any different from when you were here last?"

And so on, down the line of colleagues. Geoff Brettman nodded and spoke to each one, sometimes pausing to brush back his gray hair while chatting and making small talk with nearly every person who had packed himself into the recreation room to greet him.

Safely out of Geoff's hearing, Barton Libbey fiddled with his mustache as he inclined his head to better hear what Ted Coogan was whispering to him.

"Over the hill, you know," Coogan said.

"Shouldn't wonder," Libbey said out of the side of his mouth. "He hasn't

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been named to the conference since last time he was here as a team biochemist."

"I hear he's on waiver, now," Coogan said.

Libbey nodded. "They've probably farmed him out somewhere quiet—like this place—so they can retire him when he's done this stretch."

Chris Brettman chuckled, the already quiet sound of it muffled further by the protective suit he was wearing. He stopped at the edge of the canebrake, waiting for Nilsson to catch up. Chris flipped the filter on his reflective hood and squinted in the general direction of the F3 star which lighted Kallenberg so brilliantly, summer and winter. He reached under the filter and wiped sweat from his face. Without the protective suits it would be pleasantly warm, but the high ultraviolet would give you a roaring sunburn in ten minutes. With the suits, you didn't get bad angstroms, but it was uncomfortably hot.

Thirty minutes to finish our samples, an hour back to station, Chris was thinking. *Run a sides analysis of the real chains—throw out the randoms—be* done *with that piece by dinner time . . .*

Sam Nilsson interrupted his thoughts. "Didn't you hear me?" he asked.

Chris paused. "Yeah. I heard you."

"Well," Nilsson said, "it's an unusual name. Are you related to him or not?"

Chris rubbed suddenly at a sharp twinge just under the left side of his ribs. "Yeah," he said. "He's my father."

"Well, jesuschrist!" Nilsson said. "What are we doing out here? The whole staff got together to meet him. And you're his *son*—and you're out here—?"

Chris smiled. "We don't get along," he said. "I haven't seen him for years."

Nilsson protested. "But—what the hell—"

"I've got work to finish," Chris said impatiently. "Come on, Sam. I want to find a control for Gertrude today."

Nilsson shrugged. "Okay." He paused. "Are you sure you know where the station is from here?"

Chris nodded and pulled the keeper on his glove tighter, then pointed. "Across the canebrake; around the hill; up the bluff to the river. You'll be able to eyeball it from there."

"Okay, okay," Nilsson said. "But—" he wagged a finger at Chris, "—someday you're going to get your ass in a sling, coming away from the station without a homer."

Chris made a disdainful gesture. "I'd rather follow my own instincts. You get so you have to depend on a homer, then someday you fall down and bust the sonofabitch . . . *Then* where are you?

"Come on, Sam. Let's get hot."

Geoff Brettman closed the hatchway behind him and stood for a moment, just inside his own office—the project engineer's office. He couldn't avoid the flood of memories the place brought to him—even though it was no different from any other project engineer's office at any other biostation.

How many times had it been—ten? twenty? a thousand?—when he stood in this same spot, a young hotshot of a biochemist, called on the carpet by the project engineer. Old Man Farrar would shake his head slowly, making

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his longish gray hair swirl with the movement. Old Man Farrar wished to appear sage, a wise old wolf guiding his staff, but when he shook his head that way, he always made Geoff think of an oracle with a touch of gastritis.

"Geoff, I've had another procedure complaint from the security chief . . ." or "Geoff, this is serious—I'm going to have to file a chip on it and put it in your record."

Geoff shook his head, making the ghost of his former boss disappear. He placed the case full of personal office items on the console, went around behind it, and sat down. At the moment, he felt old and tired. The trip, the forced conviviality of the reception, the chores of unpacking, the need to get his feet on the ground and adjust to a new assignment—all were in conspiracy against him today, he thought. A slight headache, not painful but annoying, persisted just above his left eyebrow.

He swung the chair away from the desk console so it faced the lab console with its feeder complex, computer terminal, and commo panels. He ran his hand over the corner of the terminal board, where the finish had been worn away by many other hands occupying themselves in an idle gesture while their owners thought about what to do next. *Well,* he thought, *a good night's sleep will fix me up. I'll get the hump on the program tomorrow—see if anything important can be had here, or if we just grow old gracefully cataloging and indexing lifeform data.*

What Geoff was really wondering about was the conference. Was there anything new and brilliant enough in him, now, to ever get named to the conference again? Could there be some desperate accomplishment to be made on Kallenberg's Planet, or only the quiet, leaf-strewn pathway of retirement stretching on down to the end of his life?

Where's Marlene? he asked himself. Her greeting at the reception had been effusive, but she had not gotten in touch since. *Not to worry,* he thought. *She may have a big deal in the works and can't break away. But, there's much to talk about—private stuff . . . It's been a long time.*

Geoff mulled over whether to start putting the personal stuff from the case into the desk console or just leave it till tomorrow.

Before he could make up his mind, the hatchway opened, without announcing the caller, and Marlene Elbeck stepped into Geoff's office.

She was a little younger than Geoff, but looked a lot younger. She took good care of herself. Her hair was that indifferent shade of blonde which would never turn gray. Her firm and feminine body moved in quick, precise motions as though so sure of itself that she need not bother directing it, and when she smiled her eyes lit up the whole room.

Geoff was on his feet and around the desk console before the hatchway could close behind her.

She hesitated in mid-stride. "I'm sorry," she said. "I meant to see you sooner, but I hit a snag with one of the phyla and couldn't get away."

They embraced, warmly but a little clumsily as well, in the manner of lovers who have not seen each other for a long time and who imperfectly remember the size and height of the other.

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"Hey!" Marlene joked. "Come up for air!"

She walked to the window set in the curving outer wall of the compartment and looked out. The sun was setting but the slanting light was still brilliant in the bluish haze of the horizon.

She turned. "Geoff—did you know Chris is stationed here?"

He sat down disgustedly on the corner of the desk and exhaled noisily. "No! God damn it. Is he really?"

"Haven't you two patched it up yet?" she asked.

Geoff shrugged. "Patched up what?"

She took a step toward him. "*Patched up what?*" she repeated. "You haven't talked to each other in years. You barely acknowledge each other's existence—in the same field of specialty, yet."

Geoff squirmed. "Well he was damned unhappy about the way Clara and I—split up. Wasn't much I could do, you remember. He was nearly a grown man—then. He just always took sides with his mother against me."

Marlene pursed her lips. "If I were analyzing a bare statistic of primate behavior like this one, I'd say the old ape fears the accession to power of the young ape and the young ape resents the accomplishments of the old ape—but I'm not an exobiologist, so I'm not suggesting anything."

He swept her into his arms again. "For God's sake, Marlene. Here I haven't seen you in I don't know how long, and right away you start beating me over the head with my kid . ."

"I'm sorry," she said. "I've been worrying about the two of you—the effect it could have on the station if you get into it . . ."

"Let's worry about the two of us." He bent his head so their gaze met. "You're the reason I took this assignment, you know. I could have gone to Samanid. They wanted me out there. You know there's intelligent humanoid life on Samanid? You know, there's a possibility . . ."

"Yes, darling, yes," she said. She laid her head on his shoulder, and smoothed the hair on the back of his head with her hand.

Sam Nilsson heaved a sigh when the main pod of Prime Station was in sight. "You've never got us lost, before," he said to Chris, "but there have been times I didn't know where we were—and, worse yet, whether *you* knew."

Chris chuckled quietly. "You have no bump of direction, Sam."

"Bump of direction?" Sam said.

"Very unscientific," Chris admitted. "Some people just know where the are, without looking at a map or compass. *All* flying officers have it. I just *happen* to have it. If you know where you're coming from and where you're going—you always know where you are. I can't really explain it."

Nilsson grunted and started down the bluff. "Just don't forget the commo check."

Chris shaded his eyes and looked toward the station for a moment, as though unwilling—now that it was in sight—to go on.

Nilsson looked back over his shoulder. "Come on, Chris," he said.

The slanting light from Kallenberg's hot sun reflected off the pods of Prime Station as though miffed by its intrusive

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complexity.

The structures themselves were incredibily sophisticated, holding as they did a complete biostation. They would have taken years to build from scratch on the surface. Instead, they had appeared almost overnight—already complete.

All the Terran research stations were carried the same way. They were closed-cycle units, inserted piggyback into the hull of a starship. When the destination planet or space station was raised, the proper number of the proper units were simply detached from the ship and degraved down to the surface, complete with their own power supplies and food-chain sources.

Needless to say, the abrupt appearance of a research station had a profound effect on any intelligent native life which happened to dwell on the planet.

No such astonishment was the case on Kallenberg's Planet. Life had evolved, but not very highly—hampered by the youth of the star and the intensity of ultraviolet radiation. There were lots of plants and tough-skinned, buggy little land animals, but even in the womb of Kallenberg's oceans there lived nothing more complicated than octopus— nonipus, to be exact, since they were nine-tentacled.

Having made their commo check, the duty security at Prime Station admitted them to the exit portal of the main pod as soon as he received the announcement signal.

Chris Brettman and Sam Nilsson racked their protective suits in the chamber and entered the station. The duty security handed them their bugs from his outboard. They wiped them clean and hung the two plastic chips back on the inside board while the man on duty cleared the information from his console. The active inrush data in this local console continued to sort itself until each entry was manually cleared. If a technician was gone over his estimated time, the console would flash the information up on a screen, alerting the duty security to the possibility that the man might be in some trouble. The only other job that duty security had was to make certain no local inhabitants gained entry to the pod.

"Got any live ones in there?" the security man asked, nodding toward the sample racks.

"Just one," Nilsson said. "The rest are specimen."

The security man pointed his pencil at the large rack. "He's got to go to quarantine, you know."

"I know, I know," Chris said impatiently. "And sterile procedure on the rest."

The security man spread his hands noncommitally.

"I'll take care of them, Chris," Nilsson said.

"No, that's all right, Sam," Chris replied. "I've got to work on him in the quarantine. He's the control for Gertrude. Can't tell what Gertrude's doing without another one to measure against." Chris rubbed his chin. "I think I'll call him Heathcliff."

"Anything interesting?" Nilsson asked the security man, as he finished checking in. "Any news to report?"

"Nope," he said, "nothing you don't know about. The new project engineer arrived—they had a reception.

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I even managed to sneak away for a noggin, myself." He looked down at his paperwork. "Say, Chris, I see you both got the same last name. You guys related or anything?"

Chris put his hands on his hips and stared at the wall, then stooped and snatched up the sample racks. "He's my father," he snapped, walking through the hatchway toward the labs.

Sam Nilsson shrugged at the security man. "That's what he told me, too."

Geoff's fingers browsed over the keyboard, entering the dull, already familiar, but regulation-required acknowledgements into the main computer's storage—proving compliance with the mandatory knowledge which each team member must exhibit about the planetography of the assignment.

. . . Main sequence . . . single star system . . . surf. temp., 7,000° K. . . . planet of assignment, Kallenberg's Planet, located 2,300,000,000 km distant . . .

His mind was not on the task.

What did she mean? Geoff wondered. "*I can't just jump back into the same relationship we had before—not right away.*" *That's what she said. But what did it mean—exactly? Was there someone else—oh, there's always someone—if we didn't practice the principle of* if-you-can't-be-with-the-one-you-love;—love-the-one-you're-with, *everyone in these biostations would go stark, raving mad in jig time. But—more important than me.*

. . . surface grav, .94 Standard Gee 940 cm/sec^2 surf. acc. . . .

And she's so damned worried about Chris—Chris-this, Chris-that. The hell with him, the ungrateful little sonofabitch. Geoff smiled lopsidedly. The word seemed particularly apt, he thought, in Chris's case. *Every time I've tried to do something for him, he tells me to shove it.*

. . . single satellite massing 1/10 planetary mass, located 1,216,000 km. distant from planet . . .

Jesus Christ! It's not possible. But—what if she's sleeping *with him? What if that's what she was getting at—what it* really *means?* Geoff's fingers stopped working the terminal keyboard. He stared at the wall and ran his hand over the worn corner of the terminal board. Only the insistant signal from the main storage, inquiring if he wished to continue, roused him. Quickly, he finished the entry, signed it off, and coded it for open access.

. . . axial tilt, 4 degrees . . . ice cap extension to prox 60 degrees latitude both N and S . . . station located at 15 degrees N . . . term entry . . . understood . . . Geoff Brettman, Project Engineer . . . sig., OV76566, . . . general access. . . .

Geof smacked the switch with the heel of his hand and leaned back in the chair. He put his hands above his head, carefully laced the fingers together, and clasped the hands on the back of his head.

It was only a subjective scenario, he knew—and he knew that scenario probability analysis involving personal matters was so specious a method of problem-solving as to be quite useless.

Rubbish! he thought. *You're talking absolute rubbish! But,* another part of his mind insisted, *what if it's true, no*

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matter how far-fetched? If Marlene and Chris are involved with each other, it would explain her actions—lack of actions, really. Her reticence. Her reluctance.

Compete with your own son for the same woman—ridiculous. Geoff squirmed uncomfortably. Yet that was just the kind of struggle he had slipped into when married to Clara—on a different level of emotional attachment, to be sure, but the same, just the same. *Leave it alone*, Geoff told himself. *You try to draw a conclusion based on the kind of data you have, you'll soon be clawing the paint off the walls.*

"Dad?" the voice over the hatchway announcer said, with a tentative awkwardness. "Are you busy?"

"Come in, Chris," Geoff said crisply.

The hatchway opened and Chris Brettman stepped into his father's office, ironically stopping in the spot where Geoff had stood so many times when called in for an ass-chewing by the project engineer.

They stared at each other for a long moment, silently cataloging the changes during the several years since they had last spoke.

As the silence became heavier it was more and more difficult for either of them to begin the conversation which—now—had to take place.

"How have you been?" Geoff finally said.

The suddenness of the sound made Chris start. "Busy," he said.

"Onto anything big?" Geoff asked.

Chris made a wry face and rubbed his ribs absently. "I've got a couple things going that look promising."

"Good." Geoff said. There was a long pause.

"I just wanted to say hello," Chris said.

"Wanted?" Geoff intentionally put an odd intonation into the word. Chris shrugged. "I don't want you to think I'm snubbing you—or anything. I'm working late most every night, so you won't see much of me. I won't be around under your feet or anything."

"You don't want to be accused of getting any coaching from me. That it?"

"That's part of it," Chris said. "I've got a lot of ground to cover."

Geoff disliked the idea more and more the longer he put it off, but he had to deal with the question eventually, and it wouldn't get easier by letting it ripen. He traced an invisible pattern with his finger on the console. "How do you get along with Marlene?"

"Professionally or socially?" Chris asked.

Geoff made a gesture of neutrality.

"Professionally, she's the controller for all funded projects. That's as far as it goes with me. I avoid social contact with her because I don't want to disrupt the operation of the station."

"I had—hoped—I wish you could—well—stop looking at her as the villain of the piece," Geoff said.

"Why?" Chris said.

"Because she's not! Dammit! That's why." Geoff's voice was rising.

"Look, Dad," Chris said firmly, "as far as I'm concerned Marlene is responsible for Mom's and your divorce. That's your business, but don't go around rubbing my nose in it—and don't expect me to shake her hand and kiss her on the cheek just because you're

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my father and she happens to be sleeping with you."

Geoff wanted to blurt out that Marlene might *not* be sleeping with him any more, and add a "*so there*" for nastiness, but his ego wouldn't let him say it.

"Oh, you young nitwit," Geoff said disgustedly, "you think you know it all, don't you? What do I have to do to get you to realize that your mother and I wouldn't have stayed together under any circumstances—Marlene or no Marlene?"

"Well," Chris said, "you'd have to get me to believe it, first, and I just don't believe it."

"That does not affect its existence as a fact," Geoff said, pacing the words slowly. "That's just one of the habits your mother had—probably still does—which poisoned the marriage. Once her mind was made up, presenting facts to her that proved her wrong had no effect on her stubborn, *stubborn* conviction that she was right. It's a character trait you come by honestly, at least. You're your mother's son, there, by God."

"That's right!" Chris said, "and you can't bulldoze me under the way you could her."

"What's the point . . ." Geoff waved his hand, as though to clear the words out of the air. "We've been over this ground a hundred times. You're not going to change."

"Neither are you," Chris said quickly. "It really hands me a laugh to hear *you* condemn stubbornness."

Geoff turned away, as though the words would bounce off his back, and walked to the window. He stood silently for a moment, watching the Kallenberg moon—sister planet, really, since it was so large—hanging just above the horizon. "Let's not fight, Chris," he said quietly. "For once, let's not fight."

"One of us could put in for transfer," Chris said.

Geoff laughed harshly. "*You* won't. I know that." *And I can't*, he thought bitterly. *I was lucky to get this much of an assignment, but I can't give* him *the satisfaction of knowing that. Then there's Marlene—always Marlene.*

Always so unproductive, these conversations, Chris thought as he hurried down the passage, away from his father's office. *Old cement-head. He thinks I don't know he's on waiver. His request for a transfer would have about as much chance as a fart in a windstorm,* if *he had the guts to file one, which he won't. He's really hanging on by his fingernails—poor old guy.*

Chris announced himself at the hatchway of Barton Libbey's lab and stepped in.

Libbey peered up at him, over the top of his glasses, and smoothed his mustache. "Hi, Chris. Always in a hurry, aren't you? You'll hurry yourself to death someday, I shouldn't wonder."

Chris smiled, then chuckled. " 'Life is real,' " he quoted, " 'life is earnest; and the grave is not its goal.' "

"Emerson?" Libbey asked.

"Tennyson," Chris said.

"Mmmmm," Libbey said. "I doubt you're here about literature, so I conclude you've come to pester me about the cell culture you brought over. Am I right?"

"Right," Chris said crisply. "Wanted

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a second opinion. What do you think?"

"Malignant as hell," Libbey said. "Where'd you get it?"

Chris wagged his finger. "Now, Bart. No fair prying."

"I know," Libbey said, "privacy privilege. You don't have to tell me a thing till your research is done and the conclusions logged on your private code in the storage. Just the same, Chris, I'm curious as hell."

"It won't be long, Bart," Chris said, "I'm almost finished. Mostly sides analysis from here on. I'm certain of my congruency. It's just a matter of making it statistically ironclad."

"Well," Libbey said, "I'll tell you one thing about that culture."

"What's that?" Chris said.

"From the metastases of the malignant cells, I'd say a Terran organism wouldn't have a chance. The development curve is a real whipper. You stick that mob of cells in a lab animal, he'll be dead in a few weeks."

Chris rubbed his side absently and smiled at Libbey. "That's what I thought, too, Bart," he said. "That's what I thought, too."

Gertrude's three pairs of legs waved laconically in the air as the tranquilizing agent took hold of her nervous system.

Chris hummed to himself as he made manual notes on his measurements and prepared the cell culture for injection. "Okay," he said. "Measurements comparison completed on both subjects. Now, then, Gertrude, you'll hardly feel this. We know the congruency point is at the virus level, so if we stick a cancer in Gertrude, Gertrude should develop cancer—eh, old girl? Well, we'll see."

He introduced the cell culture, made a few more jottings, and patted Gertrude on the stomach. One of her three eyes blinked lazily at him.

"It's your decision," Marlene said to Geoff. "No one else can possibly make such a decision for you. All I'm saying is what I know and what you asked me about. As the station controller, it's my job to log output and storage volume, and I'm telling you Chris's work level has dropped off in the past few weeks. I don't know why, and I can't ask him as long as he is operating within program."

"I can't think about it any more tonight," Geoff said. "My head is about to crack." He stubbed out his smoke, turned off the light and rolled over. He kissed Marlene and put his head on the crook of her arm, nuzzling against the soft skin in the hollow of her elbow. "I think about us a lot more than I should, darling, but if it wasn't for you right now I really believe I'd start coming apart at the seams."

"I know," she said, "I know." She stroked the back of his head. "It's unfair as hell that you should be informed and have to decide how to tell Chris. When did you find out?"

"About Chris's son having leukemia? Oh, just a week or so before I came out. I paid a call—asked Blanche if there was anything I could do for them. I knew Chris was on an assignment. That's all. Had no idea it was *here*. I didn't even mention where I was bound. Just a matter of old Grandpa dropping in on his daughter-in-law and grandson. A chat, a sociable drink, and a pat on the head for the kid who carries

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your name. Blanche broke down just before I left, and told me. It's a goddam crime—the kid's only thirteen."

"Maybe Chris already knows," Marlene suggested.

"Could be," Geoff said. "It would be just like him . . ."

"What?" Marlene asked.

"To stay on the job," Geoff said. "His son is going to die, but he has to stay on the job. Be a sign of weakness to ask for leave."

"Don't be so hard on him, darling," she said. "It's a problem. You'll have to work it out. That's all. But if he doesn't know and you *do* tell him, it could be a shattering experience for him."

"That's the thorny part," Geoff said disgustedly.

Geoff ran his hand over the worn corner of the terminal keyboard. "Molecular stereoisometry," he said out loud. "Quite a mouthful. If it's true, then there is a level of reaction with Kallenberg organisms at the virus level. If *that's* true, then a trisome-based virus can interact with a monosome-based virus—or not react—based on the stereoisometry."

He whistled tunelessly through his teeth and tapped his finger on the keyboard. "Going to be a long, *dull* set of tabulations, but I can base the theory on statistical proofs, and then go on from there—if there's anywhere to go."

Geoff tapped out his privacy release code, the secret designation which prevented anyone other than the scientist working with the computer through his own terminal from retrieving experimental information.

. . . Midnight, 2910 - F . . .

He went to work.

Chris hummed to himself, stopped, tapped his pencil on his front teeth, then resumed humming. "Well, Gertrude," he said, "you're a damned inhospitable host. I keep infecting you with cancer cultures and you keep dissolving the metastases. You're not getting any better at it, but you're not weakened by the process, so it must be a matter of basic structure. Five days, just like clockwork, every time."

Chris sat down at the terminal keyboard and flexed his fingers, preparing to enter data and make some slight alterations in his program. "I think we'll give the cell nucleus a fair try this time. A couple of days on sides analysis should tell the tale."

The pain stabbed him so suddenly this time, and so much harder than before, that Chris inadvertently cried out and doubled over the keyboard, then went limp as he lost consciousness.

His eyes opened. *Wow*, he thought, *that was a real zinger. I must have passed out for a minute. If we didn't have a privacy rule, the game would be up. Couldn't conceal it if I was working in a lab with other people. It's building up, now. Just a few more days, God. Just a few more days and I'll have the answer—I hope.*

"I don't understand it," Marlene said. She picked up the hard copy printout from Geoff's desk, as though looking at it one more time would make it suddenly understandable. "He's far ahead of program with theory storage, but way behind in cataloging."

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"It doesn't make sense," Geoff agreed. "Jesus!" he said, "I hate to be the one to talk to him about it. There'll be hell to pay. He'll accuse me of snooping into his work—to tell the truth I've been dying to do just that. I'd rather just let sleeping dogs lie. I *know* it's going to be a nasty, head-to-head confrontation."

Marlene threw down the printout. "It's also your *job*, darling. You're the project engineer, and this is your *job*, whether it's Chris or someone else—just like it's my job to monitor team activity and report abnormalities to you."

"I know," he said, "I know. Checks and balances built into the system to prevent bending and abuse of the privacy rule."

There was a long, uncomfortable silence.

Geoff abruptly smacked his fist on the chair arm, then swiveled around to face the control board and flipped the commo key.

Chris was stretched out on the couch in his darkened office, methodically dealing with another blinding pain attack. As he operated the electroanalgesia generator he had built, the feeder complex of his terminal was extracting the entire program and results he had developed, so he did not notice the commo key light up.

The key buzzed, softly at first, then more loudly as the reception cycle was manually overriden. Only one commo outlet in the station was equipped to do that; talk to you if you *didn't* answer the call.

"Chris?" said Geoff's voice from the console.

Chris cursed softly under his breath and switched off the generator. He got up, rubbing his left side, and went to the console. He inspected the neat stack of printout which was slowly building itself. He sat down, his face lit from below by the lights of the feeder complex. "Yes, Dad, what is it?"

"Can you come up to my office?" Geoff asked. *No point in embarrassing him by putting this over a monitored channel*, Geoff thought. "We need to have a chat about your program."

"Can't it wait?" Chris asked.

"Oh, it's not serious," Geoff said. "I'm sure it will be easy to get sorted out."

Chris paused, then made a face. "I've got a job running right now," he said. "Hate to leave it half-done. How about later this evening?"

"All right," Geoff replied. The frustration spilled over into the tone of voice. "I'm not trying to interfere—just following policy."

Chris broke the connection, then turned on the lights in his office.

After he had read the entire stack of printout, making notes and changes as he went, Chris leaned back in his chair and stared at the ceiling for a long time. Finally, he hunched over the terminal keyboard and began to program the station's main computer for an "impossible" analysis chore. It was not impossible in the sense that it could not be done, but rather something that was strictly forbidden.

Geoff was in his own office, working on his "tinkertoy" theory of stereoisometric congruency when Bart Libbey called him from the infirmary.

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At first, he ignored the buzzing of the commo key.

"So," Geoff said to himself out loud, to preserve his concentration, "we can't eat them; they can't eat us. We found the non-interaction as a result of my original trisome discovery. But, at the virus level, a trisome virus *can* interact with a monosome virus. This causes a crowding of the trisome nucleus, disrupting the trisome. *Violá*. Mutual cell death."

Only when the red emergency panel lit up did Geoff acknowledge the interruption.

"Collapsed in his lab," Libbey said to Geoff. "We'll have to run some tests, but—"

Chris cut him off in mid-sentence with a rasping laugh from where he lay on the infirmary bed. "Tests, hell, Bart," he said. "You don't have to do any tests. It's galloping lymphosarcoma and it's in the terminal stage right now."

Geoff stepped to the bedside, genuinely puzzled. "How long have you known?" he asked Chris.

"Several weeks, now," Chris said. "I—"

"Why didn't you say something?" Geoff broke in.

"Wouldn't have done any good," Chris replied. "It metastasizes too fast. If the whole Terran government moved heaven and Earth, they couldn't have gotten a starship here and gotten me to a sufficiently complex medical facility to have done any good." He propped himself up on one elbow. "He knows," he said, nodding toward Libbey.

Libbey nodded affirmatively. "I'm afraid he's right, Geoff."

"Now, everybody leave us alone," Chris said. "I want to talk to my father—alone."

Even after everyone else had left, Geoff couldn't find any words to say.

"At first I was horrified," Chris said, "because I knew what was going to happen—and that I couldn't do anything about it. That's what got me to thinking about congruency with Kallenberg life forms. I repeatedly infected Kallenberg life forms with cell cultures from my own cancer, and without exception it was destroyed. This led me into the nuclear theory—well, you can go over it all, yourself. What it means is that we can develop a set of specifics against diseases caused by Terran viruses. With some simple cataloguing work from here on—you can do that—we can kill any kind of cancer cell." He laughed heartily, then fell back. "Unfortunately, by the time I figured out the answer to my own problem, the damage was too widespread for reversal of the metastases to be any help, but at least I'll be able to die fairly comfortably."

Geoff turned away, speaking with his back to Chris, afraid he wouldn't be able to form the words otherwise. "I've got to ask you something," he said.

"Go ahead," Chris said.

"I guess it doesn't matter, now," Geoff said, "except that it will be easier for you—the way things are. Did you know your son had leukemia?"

There was a long silence between them, then Chris said "No. I didn't know." Another pause. "That would explain your work with stereoisometry,

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though.''

Geoff whirled. ''How did you know that? It was—''

Chris chuckled. ''I did a bad thing, Dad. I cracked your release code in the computer and read your theory.''

''That's impossible!'' Geoff said.

''Nothing's impossible,'' Chris retorted. ''My lying here in this bed proves that. It was difficult, but I figured your code would have something to do with your own past—most everyone's does—so I programmed in everything I knew about you, and got lucky with a sequence that related to the date of your and Mom's divorce.''

''I still don't believe it,'' Geoff said simply.

''Oh yeah?'' Chris said. ''Midnight 2910 - F.'' Without waiting for confirmation from Geoff, he went on. ''You were on the right track, but you were coming at the problem from a non-productive angle. Even at that, it helped confirm my own findings. So I reworked it all, included my own theory and lab results and re-logged it in the computer under your release code. Then, I destroyed all my printouts. I guess I was just finishing that up when I passed out, again. It's a little hazy, now.''

''But, why?'' Geoff said. ''Why would you do a thing like that?''

Chris chuckled, again, low and in the back of his throat. ''Big goddamn deal. What good is it for a dead man's career to get named to the conference? The book is closing for me, but your career needs a shot in the arm in the worst way. Let's just call it a gift, and let it go at that. You can't discredit my memory by refusing the honor of the discovery. It's not in you. You're that much like me, anyway. What the hell. All posterity will know is that Dr. Brettman discovered the cancer cure. History won't care *which* Brettman—it never does.''

They looked at each other for a long time.

Finally, Chris broke the silence. ''I forgive you—Dad,'' he whispered. Then he lapsed into the coma from which he never awakened. ■

● For above all else, a story—science fiction or otherwise—is a story of human beings. Even if a dog is the central character, we're actually projecting human qualities into that central character and watching only the human-like characteristics of the dog, not his four feet and bushy tail. If it's a thinking robot that's the hero, then the robot is either made practically human or is aligned against human characters for whom we're rooting.

John W. Campbell, Jr.

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G. HARRY STINE

Some Notes About Change

I empathize with my esteemed colleague and alter ego, Dr. Jerry Pournelle, who believes that the whale's song may be heard only on recordings a few years hence. (See the June 1980 "Alternate View.") I would also like to see a passenger pigeon or a dodo bird. It would have been fun to see a Texas longhorn, but I wouldn't care to eat its stringy meat because I've grown spoiled. I'm a child of technology and a citizen of change.

I can't accept the proposition that we must freeze the world in its current condition forevermore, that we must preserve the present environment and all its denizens at the expense of human beings, and that we must cease and desist from this gluttony of change, progress, and futuristic technological goal-seeking that we're told is *wrong*.

My reason is simple:

I don't want to freeze the world in its current condition with localized brushfire wars, revolutions, starving people, land that's overgrazed or over-farmed through gluttony and/or ignorance, the current situation of guaranteed thermonuclear suicide, the torture of political prisoners, the men on horseback leading cannon fodder troops to heroic slaughter, and/or the totalitarian Attilas of the world demanding on threat of force that everyone pay for the privilege of passage or protection.

This is sure as hell no condition in which to freeze the world!

I want to see change, and I'm much happier with the world right now than I was thirty years ago. Back in 1950, we didn't know whether we were going to make it or not. In 1980, we'll make it. Reason: Human beings are in space as I write this. (Okay, they're Soviet citizens, but *somebody* is living in space right now!)

To quote from a forthcoming SF novel by Lee Correy (from whom I have no trouble getting permission to quote), "TANSTAAFL, and it applies to change, too . . . Whoever

Alternate View

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said that change was free? Or even cheap? Change any system, and it costs you something. Change? That's energy flow . . . and without energy flow, without entropy, there's nothing. And nothing in the future, either. No change, no world, no universe. And it costs in terms of human effort and human lives . . . or even universal life force . . ."

The planet Earth is an incredibly complex system. Nobody has yet been able to develop a suitable mathematical model for it. As a matter of act, nobody has a suitable mathematical model for the economy of the human system, much less the economy of one small portion of it called the United States of America. Therefore, we cannot predict, much less forecast, the outcome of stopping anything we're doing in our present system which *is*, after everything's said and done, progressing because the world *is* a better place in which to live today than it was in the past.

Let's take the case of the whales, since Jerry brought it up. There must be a valuable use for whale oil or other whale-derived products. Otherwise, nobody would hunt them down and kill them. In our world, if you don't produce something of value to others, you go hungry.

Let's think the whale scenario through in good old SF fashion. What happens if we stop killing whales? Answer: there will be a shortage of whale products, a lot of people other than whalers and sailors will be put out of work because of a cutoff of raw material, and this will ripple through the world economy in a fashion that would make a dozen good SF stories because each author would uncover the consequences of a new ripple. Alternate answer: Somebody uses his brain instead of his gonads, figures out what was the valuable whale product, and develops a way to get it in another manner through application of technology. Alternate scenario: Whalers keep on killing whales until they're all gone, whereupon the scenario changes into the same one as *stopping whale killing*. Or does it? If we kill all the whales, and the things that whales eat no longer have a natural enemy, pretty soon we're up to our armpits in whale food. If we stop killing all the whales, and whales begin to multiply again, whereupon they begin to eat more fish, whereupon there are less fish for humans and the human has been eliminated as the whale's natural enemy, pretty soon we're up to our armpits in whales.

What this breaks down to is that change is inevitable, and that if you're going to stop doing something for emotional reasons, you're probably in bigger trouble than if you kept on doing it for rational reasons.

One thing is certain: no matter what you do, you can't stop change.

And it comes back to the old engineering maxim: "If the system's working, no matter how poorly, let it the hell and gone alone! If you make changes in a system, make them one at a time so you can determine the consequences. If a change

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blows a fuse in the system twice, don't keep on putting in fresh fuses; go looking for what causes the fuses to blow. And for God's sake, don't make any change that may blow all the fuses!"

Maybe we have to eliminate the whales, the passenger pigeons, the buffalo, the dodo, the greak auk, and the hundreds of other species that become extinct every year.

Darwin never said that the existence of a species was any guarantee of its continual survival.

Maybe elimination of the whales is a price we have to pay for our *own* survival as a species and for its eventual expansion on to the universe. I don't have that answer, but I can ask the question quite legitimately, albeit in anticipation of the screams and yells from the environmentalists (read that last word as "anti-humanists").

In Phoenix, Arizona, we have had a prime example of the sort of thing we're talking about. The Rio Salado (Salt River) used to run freely through what is now Phoenix, but Phoenix couldn't exist then because the area was arid Sonoran Desert. The Reclamation Act of 1904 permitted the construction of a series of dams that impounded the waters of the Salt River, permitting an extensive irrigaton system that makes Phoenix the world's largest oasis. However, because they're water impoundment dams, they function poorly as flood control dams. And there have been some dandy floods in Phoenix during the past three years—four 100-year floods and a 500-year flood, meaning that such floods should happen only once in 100 or 500 years respectively. There are plans to build a flood control dam, but the construction of this edifice, Orme Dam, was successfully blocked in the courts by environmentalists because it would have threatened the nests of five (5)—count 'em, *five*—bald eagles. In the ensuing 100-year and 500 year floods that occurred, nearly a dozen human lives were lost, hundreds of homes were destroyed, businesses were ruined, valuable farmland was washed away, millions and millions of dollars were lost, the Phoenix area was brought to a standstill . . . and the five bald eagle nests were swept away by the raging waters. (Note: The environmentalists are still trying to prevent the constuction of Orme Dam.)

Change is something the human race has caused on planet Earth since our ancestors first brought fire into the cave and began to fire-harden wood shafts to make better hunting spears.

James A. Michener is an author whose works I highly recommend to those interested in the future, especially his books *Hawaii*, *Centennial*, and *Chesapeake*. Michener wrote those books for entertainment. But, like almost all good authors, he also leaves a subtle message. In each book, he investigates the nature of change in the world and in the human system.

Therefore, it doesn't surprise me that the world changes, that technology changes, that there are continual political changes, or that my

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backyard isn't the same today as it was yesterday when I started writing this.

The only constant is change.

If I can hear the whale's song only on a recording from a device powered by electricity provided by the burning of petroleum whose industrial technology was spurred by a shortage of whale oil a century ago, I would much prefer that than having to write this with a quill pen by the light of a whale oil lamp.

We can make it to the stars—and make a better Earth in the process—only by acting in response to rational, enlightened self-interest, not by wallowing in guilt. Excuse me; supper's ready, and we're having steak, fish, chicken, or some living Earth species that's been deliberately killed to feed me. ■

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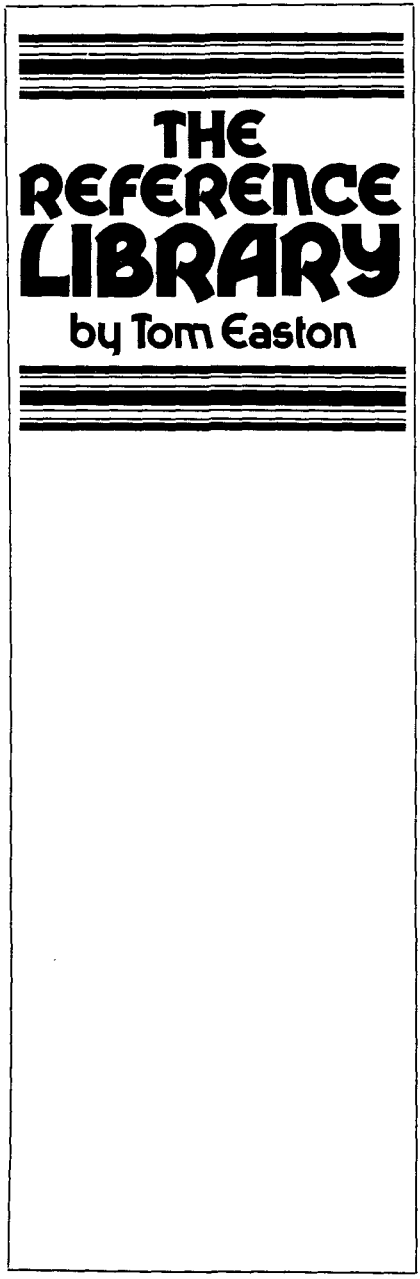

Galaxy: Thirty Years of Innovative Science Fiction, F. Pohl, M. H. Greenberg, and J. D. Olander, eds., Playboy Press, $10.95, 465 pp.
The 1980 Annual World's Best SF, D. A. Wollheim, ed., DAW, $2.25, 284 pp.
The Man Who Loved the Midnight Lady, B. N. Malzberg, Doubleday, $10.00, 201 pp.
The Best from F&SF, 23rd Series, E. L. Ferman, ed., Doubleday, $10.00, 273 pp.
Interfaces, U. K. LeGuin and V. Kidd, eds., Ace, $5.95, 310 pp.
The Island of Doctor Death and Other Stories and Other Stories, Gene Wolfe, Pocket Books, $2.95, 364 pp.
The Shadow of the Torturer, Gene Wolfe, Simon and Schuster, $11.95, 304 pp.
The Light-Bearer, Sam Nicholson, Berkley, no price given, 217 pp.
The Far Frontier, William Rotsler, Playboy Press, $1.95, 236 pp.
Shiva Descending, Gregory Benford and William Rotsler, Avon, $2.50, 394 pp.
New Dimensions 11, Robert Silverberg and Marta Randall, eds., Pocket Books, $2.50, 192 pp.
The Vampire Tapestry, Suzy McKee Charnas, Simon and Schuster, $11.95, 293 pp.
Sabella, or The Blood Stone, Tanith Lee, DAW, $1.75, 157 pp.

Last month I had a few words to say about *F&SF*'s thirtieth anniversary volume. This month, we have **Galaxy: Thirty Years of Innovative Science Fiction.** This too celebrates an anniversary, though I wish the celebratee were in better health. *Galaxy* has been failing for several years now, even coming disastrously close to a writers' boycott, largely because it was insufferably slow in paying. Still, it has not stopped finding good stories. You can see as much from John Varley's 1976 story, "Overdrawn at the Memory Bank," and his prefatory note describing his vow to have nothing further to do with the magazine until he is paid in full. Happily, perhaps, *Galaxy* has now been taken over by the *Galileo* folks, and the

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magazine's health may be about to take a turn for the better.

Will *Galaxy* ever see its fortieth, or fiftieth, anniversary? Who can tell? But judging by its past, it deserves to. This magazine has published many of the gems of our memories, from Damon Knight's 1950 "To Serve Man" to Cordwainer Smith's 1960 "The Lady Who Sailed the *Soul*" to Theodore Sturgeon's 1970 "Slow Sculpture," and more. The book contains 25 such stories, together with a memoir by Horace Gold, the seminal founding editor, a reminiscence of Gold by Alfred Bester, a sample of Algis Budrys' *Galaxy* book column, and an index complete enough to list this reviewer's sole appearance in the magazine's pages.

F&SF. *Galaxy*. Of the traditional big three, only Analog remains to trumpet its anniversary in book form. And the big event is coming. It now seems that there will be a fiftieth anniversary volume for *Astounding/Analog*, probably in 1981, a year late. Stan Schmidt has been going through the back issue file looking for stories to put into it, and he has asked me and others for suggestions. The result will be solely his, however. Watch for it. And tell me—should I review it here?

Since I've started this column with an anthology, I'll go on in that vein. I have Don Wollheim's **The 1980 Annual World's Best SF** here, and if it doesn't measure up to a magazine's anniversary volume that is only because he has but one year to choose from. He doesn't really look for the world's best, either, since this book's eleven stories come only from Analog (3), *F&SF* (2), *Omni* (2), *Universe 9* (1), *Destinies* (1), *Galileo* (1), and *Isaac Asimov's Science Fiction Magazine* (1). Still, there are George Martin's "The Way of Cross and Dragon," a study of heresy and lies; Orson Scott Card's "Unaccompanied Sonata," a bittersweet treatment of fate's inevitability; and Ted Reynolds' "Can These Bones Live?" That's enough gems right there to justify the price of the book.

Barry Malzberg's collection, **The Man Who Loved the Midnight Lady,** is a fit cure for mania, guaranteed to remove any delusion that the world is a happy, cheerful place. Malzberg is a prolific writer with a justifiedly glowing reputation. The twenty-eight stories in this book have not previously been collected, though some of them have been reprinted. They are hardly the dregs of his *opus*, however. There is one quartet in particular that could have formed the kernel of a collection by themselves. These are the four "writers' heaven" stories, in which Malzberg makes the pungent point that, to a writer, heaven can only be not wanting to write—not not *writing*, but not *wanting* to write. I can understand. It is bad enough for one like me, not being able to escape the typewriter for any time at all. It must be far, far worse for a Malzberg, so bitterly depressing that what he writes must pain him as much as it does the reader. So why don't writers go to psychiatrists to have their wish to write "cured?" Perhaps they want to want to write. So why . . . ? Duntesk.

It is worth noting that Malzberg has recently been collaborating with Bill Pronzini, and their joint efforts are sparkling, witty, amusing stuff, not (usually) depressing at all. I suspect Malzberg, and perhaps Pronzini, feels their discovery of each other qualifies as a genuine miracle. As an example of its results, I offer "Another Burnt-Out Case," and in connection with it I can offer Malzberg a word of comfort—*I* giggled at the ending.

To get back to *F&SF* for a moment,

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there is now the 23rd **Best from F&SF.** These volumes are the ones many of us cut our teeth on at the local library (remember?), and they are well worth reading. This one includes Ed Bryant's Nebula-winner, "Stone," Knight's 'compressed novel,' "I See You," Tom Reamy's "The Detweiler Boy" (vintage stuff, with the vineyard burned), Bloch's chilling "Nina," Varley's promising, "In the Hall of the Martian Kings," and more. Tom Disch's "The Man Who Had No Idea," concerning a world where conversation is licensed, is witty enough, but to my mind an exercise in futility worth too little more than the paper it blots. The book also includes samples from *F&SF*'s competitions of recent years (outrageously twisted titles, limericks, etc.), Isaac Asimov on a clone of his own, and Baird Searles on film remakes.

Interfaces is a shining example of the original anthology. LeGuin and Kidd didn't title their book until they had the contents in hand, claiming it was then obvious. I don't see it, but the question is really irrelevant. Under any title, the contents would shine as brightly. Science fiction, fantasy, mainstream, unidentifiable, all are here, all are good. The best ones include "The New Zombies," Avram Davison's and Grania Davis's tale of a new rejuvenating drug and its effects on the innocent; Philippa Maddern's "The Pastseer," which concerns vision; Daphne Castell's "Household Gods," obvious in hindsight only; Tiptree's "Slow Music," a song of the varieties of love; and Gene Wolfe's bizarre "A Criminal Proceeding."

Speaking of Wolfe, here is **The Island of Doctor Death and Other Stories and Other Stories,** a niftily titled collection built around the Barrington suburbanite's tributes to H. G. Wells, the title story, "The Death of Dr. Island," and "The Doctor of Death Island," three permutations of a title and a demonstration of the wonders that can be achieved by free association from a single starting point. Each of the stories carries its own freight of meat and juice in its frame of literature, psychiatry, or penology, and each would have been well worth writing without Wells' example. But that hardly needs saying. Wolfe does not write simply because he has a nifty idea. The ideas *are* nifty, but he adds a sensitivity, a skill with words, a love of writing that make his work as near the gods as anything in literature ever comes. Do you doubt me? Then read the tribute tales. Read "Feather Tigers," his sermon on the relationship of symbol and life, and "The Eyeflash Miracles," a study of faith and psychic phenomena with a touch of Oz, and "Tracking Song," a novelet of quest and mystery. Disagree then, if you can.

I first met Wolfe when we were both attending the Windy City Science Fiction Writers' Conference in and around Chicago, along with George Martin, the Eisensteins, Algis Budrys, and others. The criterion for membership was having had a SF story published, one or many, good or bad. The membership was therefore mixed, to say the least. The group's excuse for existing was mutual criticism; the big benefit was criticism from pros such as Martin, Budrys, and Wolfe. There was also the occasional guest, such as Tom Reamy.

But to the point. Occasionally, Wolfe would bring us all a chapter from a work in progress. The chapters were not in sequence, however. He skipped large stretches of his story, displaying only those pieces he thought needed the thoughts of others. And we were unanimously pissed. His story was good, damned good, and we wanted it all. Fortunately, we now have it, only

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slightly different from what we saw in draft. It is **The Shadow of the Torturer,** volume one of a tetralogy, *The Book of the New Sun*. (Volume two, *Claw of the Conciliator,* is scheduled for 1981.) It concerns one Severian, a young man raised, as is the custom for the babes of their victims, as an apprentice to the torturers' guild. As a boy, he touches fates with the traitor Vodalus in one of the ancient graveyards of the City. As a journeyman, he permits the Lady Thecla too easy a death and is sent forth from his Order's tower of the Citadel to be a traveling headsman. This volume covers his growth to manhood, his exile, and his journey to the City limits, during which he acquires both companions and the jewel known as the Claw of the Conciliator. Later volumes will bring him full circle to the throne of the House Absolute.

My brief description is hardly eloquent enough to convey the quality of Wolfe's prose. You have the hint of a flavor, perhaps, the odor of an odor. Can I do better? Then let me say that Wolfe's great strength, besides deftness with scene and character and event, is his way of presenting a rich background, not by ponderous explication, but by mentioning details in passing as if he is describing a world in which his readers have grown up. For example, when Severian is first taken to a brothel, Wolfe writes, "Another door opened. It had a stained-glass insert showing the Temptation." What is the Temptation? Wolfe offers not a clue. But its function in the scene seems parallel to the Crucifixion, the Annunciation, or other religious events we all do know. The effect is to persuade us of the reality of Wolfe's world, to help us suspend our disbelief and enter his future of marvels, wonders and strangenesses.

And don't ignore his Appendix. There he writes, "To those who have preceded me in the study of the posthistoric world, and particularly to those collectors—too numerous to name here—who have permitted me to examine artifacts surviving so many centuries of futurity, and most especially to those who have allowed me to visit and photograph the era's few extant buildings, I am truly grateful." Lovely.

Sam Nicholson, happy tenant of this magazine with his Bard Laureate, has created a very different tale. **The Light-Bearer** is an enjoyable twist on a tale of Sinbad, where rockets replace rocs and the magic is science but the sultan remains. The scene is a world once settled by Moslems, fallen to barbarism, and rediscovered by civilization. The moderns assume the task of raising the barbarians to their level, by supplying selected fruits of technology and by offering each child a choice of marvels. One child, one only, one Zeid, chooses education in place of physical treasure, learns to make glowing lights, and becomes the Light-Bearer. His wealthy family finds him a bride, Coral Bud, lively, saucy daughter to a pirate chieftain, though he is smitten by a greedy, lovely princess of another land. He spurns Coral Bud, is forced by her machinations to accept her "sisterly" company on his quest for the princess's hand—and, to do him credit, for her mind. He suffers from civilization, you see, and he wishes to raise his people's ethical level.

Needless to say, the princess proves to be as dense as she is beautiful and Coral Bud gets her man. But I give away little by saying this much. It's obvious, and the story is much more a tale of palace intrigue, at home and in orbit, of the bastard renegade Feelafell's depredations and comeuppance,

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and of how best—and if—to civilize. As such the story is both entertaining and moderately thought-provoking. It is hardly just another space opera, though it certainly looks like one at times.

Speaking of space opera, William Rotsler has done, quite deliberately, the quintessential number. **The Far Frontier** features trappers on horseback fighting Indians and the Big Company that wants to take over the trading post. The hero is an ex-mercenary, the guns are lasers, the Indians are aliens who believe the folks they fight are there as a test of ontogenetic fitness, and the Company is an interstellar exploiter that wishes to make the world of Zikkala an R&R base for its workers on a neighboring hell-world. But the biggest difference between Rotsler and Zane Grey is that Rotsler's heroine has heard of feminism.

Does that sound a bit snide? It isn't meant to. The times being what they are, Rotsler couldn't have gotten away without the feminism, and a beautiful woman who is also a dependable sidekick makes a much more satisfying character. When the whorehouse madam proves to have a streak of the same stuff and joins up with the hero to fight the Company, the story gets better yet. It is spoiled only by a deus-ex-alien I won't reveal, except to say that it alone makes the Company's defeat possible. And it could have been otherwise. Rotsler needn't have made his villains quite so omnipotent.

Perhaps Rotsler likes his villains that way, though. He certainly did it again when he and Greg Benford teamed up to write **Shiva Descending.** Shiva is an asteroid over two kilometers in diameter, aimed dead at Earth and offering the likely end of all surface life on our planet. The only possible solution is to blow it off course with a 400-megaton Russian hell-bomb and a couple of dozen 20-megaton jobs. The world has less than a year to get its act together, and that act depends on an egomaniac astronaut.

The novel details the deterioration of the human psyche faced with total disaster. Millennial cults devoted to pleasure and lust, to stopping the bomb mission, to death, to—you name it—are rife. People are desperate. Their minds are not on their jobs, not even on the crucial NASA jobs. As meteors turn cities into craters and rubble, fatalism becomes the philosophy of the day.

You know the ending. Too few authors dare to live up to the dire threats they utter. But the story is not just the tale of victory. It is also a tale of ongoing disaster, and it seems tailored for the same folks who love gruesome headlines. It's a potboiling disaster novel, and not worth a dime as literature. But it'll probably make a bundle, so—more power to the authors. Both Lit and Non-lit have their places in the world, and though we may wish the one could appeal like the other and the other were written like the one, it just ain't in the cards, and even writers have to live. I only wish I could live so well.

One more anthology and two related novels, and we're done for this month. The anthology is **New Dimensions 11,** for which Silverberg turned over most of the work to Marta Randall. It's predictably good, containing such stories as Craig Strete's "A Sunday Visit with Great Grandfather," in which conquering aliens are stymied by a supernatural hero, and Alan Ryan's "Comstock," whose astronaut hero, awash with guilt, is forced to make one more voyage. The two best stories in the book, however, are flawed in peculiar ways. Suzy McKee Charnas' "Unicorn Tapestry"

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is flawed by the near-simultaneous publication of the novel of which it is a part, and Michael Swanwick's "The Feast of Saint Janis" suffers from its resemblance to Gene Wolfe's "Seven American Nights," even to the point where the African Moslem hero's name is Wolf. Both deal with a visitation from Africa to an America in ruins, crowded with chemical and nuclear mutations, but illuminated by the stage, and in both the hero is called a pilgrim. Is this hero-worship? It's not plagiarism, but Swanwick does get too close for comfort.

The Charnas novel is **The Vampire Tapestry.** It brings to life a genuine vampire, immortal but alone of his kind, living in disguise as a university professor, Dr. Weyland, and feeding from the veins of those who consent to sleep in his dream-research laboratory. Caught out by a woman immigrant, he flees, is captured by exploitative satanists, escapes with the aid of a young boy, and enters psychotherapy with the woman Floria. Not surprisingly, the therapy is less than successful in the traditional sense, for Weyland is the victim of no delusion. But it is successful in another sense, for it opens Weyland to his kinship with mundane humans and Floria to a strange sort of love; this episode well deserves its title of "Unicorn Tapestry" and it does stand quite ably alone in *New Dimensions.*

Weyland's opening plagues him when he moves to a new academic post in the Southwest. He has begun to see people as more than cattle existing for his pleasure, and he begins to gain some inkling of the rationale behind his strange life-cycle—long periods of active life alternate with centuries-long, memory-wiping comas, hidden in some dank cave. Does too much empathy or sympathy interfere with his ability to feed as he must? Must he sleep in order to lose his memories and gain a fresh start? Perhaps so, but Charnas barely answers the question. Her ending is decisive enough, but it leaves such questions largely to the reader. Answers are only suggested, and any more would be too much.

Vampires have been fairly popular in the last few years, and Charnas' book is probably one of the better treatments of the theme. A fully adequate treatment is Tanith Lee's **Sabella, or The Blood Stone.** Her vampire is a mite less natural than Charnas', for it appears when a pubescent girl enters an ancient tomb on an alien world, finds a strange jewel, and is possessed by the jewel's previous owner. Her taste for blood quickens, she drinks from beasts and men, and she learns to control her thirst so as not to kill. Instead, she finds her sucking heightens the sexual act so greatly that men clamor for more, not understanding the cause of their need, until they die despite the lovely vampire.

One such victim is Sand Vincent, a ne'er-do-well whose brother comes seeking the cause of his death. Jace Vincent finds Sabella, discovers her secret, and sends her off to visit a museum in the town of her childhood. There she learns the true nature of her secret and finds that Jace has a secret of his own that can let the two of them be allies.

It's a bloody tale, and a strange one, for Lee manages to imbue it with a suggestion that an idyll is just around the corner, just past the next page. That she succeeds in bringing the promised idyll even nearer is a testimony to her powers as a writer. What I said about her use of language a few columns ago is less true for this book—she writes a sparer, less flowery prose here—and this, perhaps, lets her other skills show to better effect. ■

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Gentlemen,

I was delighted by Tom Easton's warm review of *The Door Into Fire* ("The Reference Library," June 1980), but I have to take issue with just one part of it, lest misunderstandings arise. I find the identification of David Gerrold as my "companion/mate/spouse" to be personally flattering, but not quite accurate—since for several years now I haven't been mated, espoused, or otherwise hitched to anyone but my typewriter. "Companion," though, in the Skywalker-Solo sense, expresses the relationship pretty well; we fire cover for each other on the literary battlefield, and if I'm lucky enough to hit something, he reminds me not to get too cocky . . . .

DIANE DUANE

Dear Stan,

Congratulations!

Not on your 50th Anniversary. That's old hat. *Amazing Stories* had that back in 1976. No, congratulations on something far more spectacular. Your November 1980 issue is the 600th issue to appear, and that really is breaking records. Not even *Amazing* has done that. In fact *Amazing* has not even reached its 500th issue, and Analog passed that landmark in July, 1972.

Throughout the checkered history of SF magazines it's usually an achievement for an SF magazine to reach double figures, let alone treble. So to get as far as 600 issues through four publishers, five editors and a World War is a staggering success.

If my arithmetic's correct, you should make the 1000 in February, 2014. See you then.

MIKE ASHLEY

Mr. Schmidt:

I would like to respond to Jerry Pournelle's article "Twilight Song" (June, 1980) in which he advocates return to military conscription.

Mr. Pournelle's "obvious remedy" to our lack of sufficient numerical strength and sophistication in our armed forces is to reinstate the draft. This is a short-sighted and simplistic approach to a complex situation. One that will cause more domestic upheaval than the Vietnam War.

There are adequate military forces available to safeguard the defense needs of this nation. There are enough army divisions, naval squadrons, and air wings to counter most threats most anywhere in the world. But these units have one particular disadvantage Mr. Pournelle did not discuss; they are located within and close to the continental United States. Our military is deployed in the wrong place to meet worldwide threats.

It takes time to deploy units from one area to another. The greater the distance involved, the more time and expense required. In any crisis or war, time would be a factor short in supply. Phys-

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ical proximity to world "hot spots" will shorten reaction times and may even deter hostile actions through the use of a standoff military presence.

We cannot hope to match the Soviets, or the Chinese, man-to-man on the battlefield. We cannot match the numerical strength of the Communist powers. We do not have the population large enough to draw a large combat force. We do not need an army the size of the Russians. It exceeds our wildest defense needs in a peace time situation.

There are presently a little over two million military personnel on active duty with an annual budget of some $160 billion (about half of which is devoted to personnel costs). The Soviets have a military of a little under four million and guesstimated budget of similar size. If we were to seek numerical equivalence with the Russians, we'll basically have to double our military. The resulting increase in defense spending will put the defense budget alone at close to $300 billion a year. Do you know what a budget like that will do to a peace time economy? Inflation will nova. We will wreak our own economy and allow the Russians world dominance by economic default.

We are not at war, and under peace time circumstances the free enterprise system should pay the labor market what is demanded to provide sufficient military manpower and equipment to secure an adequate national defense. With the use of incentives, people can be drawn from the labor market into the military. But presently, military personnel are not adequately compensated for hardships that must be endured or paid fairly. I know because I'm one of them.

The military does need superior technology. But it needs the proper type of technology. Technology that will respond correctly in the proper situations. High technology equipment that cannot be used because of frequent repairs is of little use except to the enemy. High technology which has a negligible value even when it's functioning correctly is of dubious value. Keep in mind that high technology equipment is also high cost equipment. There are enough examples of the wrong technology being built at the wrong time and applied in the wrong situations.

The military needs technology which will enhance its ability to project power, strength, and resolve worldwide within a moment's notice. This will be not so much to fight long term conventional wars but to snip minor wars in the bud, support democratic governments, and secure areas of the world vital to our self-interest.

Mr. Pournelle is under the mistaken belief that "it is easier to send a volunteer army into a reckless adventure than it is to send conscripts." This is simply not true. The war in Vietnam was made possible by the use of conscripts pressured to join. The military force was available for use; and because of conscripts, it was utilized to its greatest inefficiency. Since the volunteer army concept developed into actual practice and the War Powers Act, this nation has not been involved in military adventurism.

Those persons sought most by the military; the bright and the young and the well-educated, will probably escape the draft through deferments and exemptions. College fraternities will again become havens of legal draft dodgers. Even with the accomplishment of so much in the women's movement, equal rights will be dealt a heavy blow when a person is exempted from national defense because of sex.

Sacrifice is the cornerstone. Those I

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serve with and myself will place our lives in danger and even die. You can not pay a policeman enough to take on a deranged father with a shotgun or a fireman enough to challenge a burning home. What do you pay someone who volunteers for the military? We will never, of course, be paid enough. But our sacrifice should at least be mentioned. There are some of our fellow Americans who are very distressed at sacrificing profits (the wheat farmers) and personal recognition (the Olympic athletes). I wonder if this nation has forgotten the use of scarifice, and us.

The draft should only be used when the sacrifice of rights and the lives of our people are commensurate with the threat of war. Peace is the time of volunteers.

ELLIOTT I. ALVARDO
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Texas, 76311

Dear Mr. Schmidt:

M. David Stone's article in the June, 1980 issue, "Beyond First Contact," causes me to reflect upon the various arguments which have raged in the scientific and not-so-scientific communities over the last couple of decades with respect to the existence or non-existence of extraterrestrial intelligence. Although there have been numerous attempts, both "official" and "unofficial," to debunk the existence of extraterrestrial intelligence since I have been interested in the subject, there is a significant lack of literature which seriously considers the logical consequences of the correctness of the debunker's position.

In fact there is no extraterrestrial intelligence in the galaxy, our race's death warrant has already been signed, since implicit in our collective solitude is the conclusion that abstract intelligence is an inherently unstable survival characteristic, and the instability must ultimately lead to racial destruction. Enough doomsday literature has been written to ease the pain of selecting the method of our demise, since we need merely pick one or more themes, or combinations thereof, and proceed upon our merry way toward extinction.

Somehow, I cannot conceive of a race that demonstrates the characteristics of egocentrism, inventiveness, and obstinacy to the degree possessed by Homo sapiens as passively accepting such a fate. The conclusion follows (although the logical process is admittedly full of holes, due to brevity) that extraterrestrial intelligence is virtually a prerequisite to our continued survival. Therefore, it is only logical that we should proceed in all due haste to get to work and meet some of our neighbors, at least partially in the hope that we may avoid the fate to which some of our kind condemn us.

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Of course, it could also be that it simply doesn't arise very often. In any case, we ought to go out and look instead of relying on guesses.

Dear Mr. Schmidt,

After 21 years of reading Analog/Astounding, even before completion, your June issue has forced (titillated) me to break my silence.

Upon the death of John Cammpbell, I almost ceased reading the magazine. I could not imagine its continuation at the level that had addicted me for so long. Obviously and fortunately for me, that decision was not made. However, your reprint of one of his editorials re-

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vived for me the intensely personal feelings of anticipation I felt each month awaiting the next installment in Mr. Campbell's ongoing campaign to shock me into thinking. Many of the ideas he expressed are as fresh in my mind today as the day I read them. He is missed.

Reading the article, "Beyond First Contact", I am struck with one alternative, almost, but never, expressed by Mr. Stone. He states with certainty that any civilization with which we make contact by definition, at this time, will be more advanced than we. No disagreement with this concept. However in his third to last paragraph, in listing the various possible explanations for receiving no replies over the next few centuries, he fails to add that perhaps we are the first civilization to reach a condition capable of interstellar communication, and for us to have an answer we will just have to wait for the second (which of course by definition will be less advanced than we).

My final reaction is to Mr. Pournelle's article.

Perhaps, as stated, conscription is evil. If one, however, in the midst of advocating an action, must call it evil, then I feel there is a compulsion to suggest how to reduce that evil in the accomplishment of the good. Perhaps I can offer some thoughts to Mr. Pournelle along that line.

My thoughts are not original; they are suggested by the author mentioned in the article—Robert Heinlein.

In *Star Trooper*, he suggests a society where the concept of rights (the vote) within a society are conferred upon completions of responsibility (service hazardous of life) to that society. In the fortunate absence of a shooting war his concept is not viable in our current state of affairs.

However we do have a major problem in our country today for which the military is already offering itself as a solution—technological unemployment. Perhaps if we were to reintroduce conscription (only this time make it truly universal) we could solve both the problem of military and socio-economic needs. Obviously our military could not absorb all who come of draft age. We could add to military service government sponsored projects also providing job skill training. Building pollution control devices, required by legislation, at reduced prices for industry comes to mind quickly as I write this.

I strongly feel that some solution to the acceptability of conscription is necessary. Volunteer armies are much more susceptible to My Lai's than are citizen soldier armies.

Thank you for your patience in reading my ramblings.

THOMAS J. BLATTNER

But while we're at it, let's look Real Hard at the possibility that technological unemployment is not so much a problem *as an* opportunity. *Key question:* why *do we consider it a problem?*

Dear Stanley Schmidt:

I can't tell you how rueful I felt reading the editorial by John Campbell in the June Analog. I'd read it before, as it happens, with hearty assent: I, too, thought our democracy had equality of opportunity. But in the twenty-odd years since a lot has happened, and my smug assumption that my IQ of the 185 assured me a life of public accomplishment went down the tube a long time ago.

In 1960 I earned a degree in mathematics, with honors. I was elected to Pi Mu Epsilon, a fraternity recognizing excellence in mathematics, and to Phi Beta Kappa, etc., etc. Imagine my shock when I was turned down by every

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graduate school I applied to! Several admissions officers told me, quite frankly, "if you were only a man, we'd grab you."

Let's face it, a solid knowledge of number theory doesn't get many jobs. While men with far worse records than mine went to Ph.Ds, I alphabetized applications for Graduate Record Exams. I cut stomachs out of rats for a medical school. I had a job giving three-year-olds a half-assed "IQ" test. For several years I've been a housewife, and in all that time I've used math exactly once, to calculate the rate of rise of the sagging ridgepole of our garage relative to the motion along the garage floor of the end of the 2×10 I was shoving it back up with. And, as you know, for the past few months I've been trying to write science fiction. A sci-fi plot of the sociological persuasion, even now, could involve an intelligent woman accepted just as a man would be. . . . .

How do I know? I have a daughter, every bit as bright as I used to be, and even better at math. Asked, by her four-year-old sister, why the sky is blue, she responds in terms of Rayleigh scattering . . . and in school sits for a week being told that a hundred centimeters make a meter. A boy no smarter than she is has enjoyed accelerated courses for several years, but only recently, after five years of squawking, has any enrichment been offered her ("Girls are no good at math"). Send her to private school? If I were richer, or poor enough to get scholarship aid, but not caught in the middle-class squeeze with college coming up in five years.

Just two examples of thousands. So you see, to some extent inequality of results does imply unequal opportunity. A large enough statistical sample showing unequal representation of groups in some one achievement category, where there is equal distribution of ability and motivation within those groups, is a valid demonstration of unequal opportunity to achieve in that category. Unfortunately, like the one-in-a-hundred-chance-of-flood-this-year that becomes the once-in-a-century-flood, this argument is frequently misunderstood and misinterpreted. Hence convoy education, which is hardly an opportunity for anybody.

There's another point in Campbell's editorial that bothers me even more. That's the bit near the end about not putting up with dunces and not imposing on geniuses. Balderdash. I think I have, by Binet's definition at least (Lord, no, let's not open that can of worms), a claim to genius. I've never met anybody I couldn't learn from, and that includes the not-quite-educable retarded laundromat attendant down the street from my first apartment. And Campbell, of all people, could hardly have been an imposition on a genius, except one of those insufferably self-important types who turn out to be total bores anyhow.

He certainly had his hand on a problem, and heaven knows we've got it a whole order of magnitude more than in 1958. But I wonder if he really grabbed it?

Why not plunk for *in*equality for opportunity? We have it anyway, we might as well make intelligent use of it. If an opportunity is designed for one person or group, and the same opportunity is then given to a different person or group, it may still not be equal. Suppose Campbell's "Tom" had a pragmatic father (call him Bill) who took pains to point out that there is a tide in the affairs of men which, taken at the flood, leads on to fortune; omitted, all the voyage of their life is bound in shallows and in miseries? While "Dick"

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is short for Ricardo, who never quite understood English, let alone abstracted anything from information given in it. Shouldn't Dick get something extra, some help with English as long as he had to live and learn with it? Can't Tom take a proficiency test and leave a few lectures on history out? Don't both of them rate an interested "mentor" to help determine which should get what? *Not* simply on a basis of tests? Could be Dick is actually smarter than Tom, and seething with frustration. Or it could be that Dick, as Ricardo or Richard, chooses a job that allows him to eat and still have plenty of time to tinker happily in the basement, while Tom works so hard he has an ulcer and spends his three spare minutes a day miserably gulping Maalox. Which is more 'successful'? 'Smarter'? In whose terms?

Imagine a real democracy (only the most primitive of peoples have ever had one). One where every individual can learn where he fits best—sorting dimes and quarters in a laundromat, inventing a new cosmology, editing a magazine. And can achieve that fit, happily. And change when he (I'm using "he" generically, you realize—"he/she" is a dichotomy, not a word) needs to change. And can associate with all sorts of people, as people. And has a say in how his country is run, so that the voice can cry from the wilderness and be heard before it drowns in acid rain, and the anger of being treated unfairly leads to justice and not to riots. And . . . . but I suppose this would be a pipe dream, if I were smoking a pipe.

Alas.

Take only the first part of that dream. Now that we have a surplus of teachers, do we say, "whoopee! Look at all we can do now!" We do not. We fire the younger ones and keep the class size at 32. (In Minneapolis, all teachers with less than ten years' experience have been let go.) We cut back on programs to accommodate others—fewer teachers, after all—and instead of teaching a full year of science divide the year in thirds and teach science (next year kilometers, folks), health (sex education to you) and physical education (stand around in the gym and look dumb).

Now that we have "committed" ourselves to equal opportunity, do we take all those trained teachers and invent new ways to teach kids that don't, for whatever reason, respond to the old standbys? We do not. Do we sort out the kids on the basis of their needs, so that we can work out top-notch programs to meet those needs? We do not. We sort them out by colors of their faces—not on their *records*, mind you, but by eyeballing it—and if one of them who needs what's at XYZ school happens to bring the population of that color above 60 or 30 or 18 or whatever percent is allowed, forget it.

There's no better ego-builder than taking a chance on failing—and making it. But half the kids in our schools, not divided on a basis of IQ, mind you, are *set up* to fail by people with the best of intentions—and what could be more devastating than *never* making it? Whether you're a dunce, average, or a super test-taker? I'll tell you one thing, and that's *always* making it, so that success has no meaning at all.

NAME WITHHELD BY REQUEST

Plenty of food for thought here—and your last paragraph hits one of my favorite nails squarely on the head. As a teacher I never found any better motivation for futher achievement than succeeding at something you really doubted you could do—and about the only times I had a solid feeling of having really accomplished something, as a teacher, were when I managed to help somebody do just that. ■

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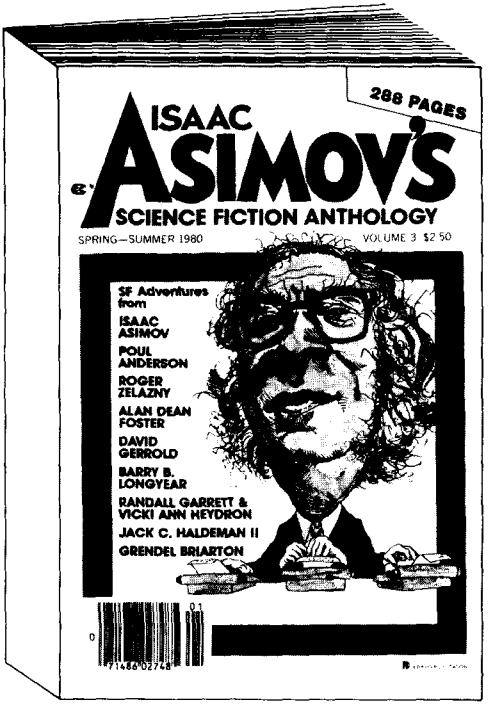

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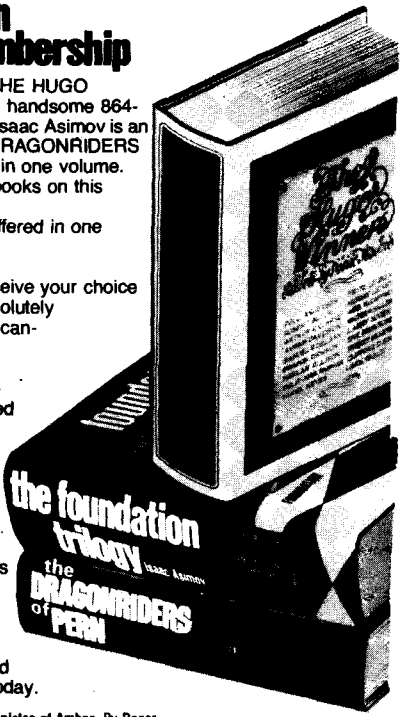

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